Winter Park City Commission & Staff

Strategic Planning SESSION

Friday, September 6, 2013

9 a.m. to 2 p.m.

Winter Park Community Center

CITY OF WINTER PARK, FLORIDA
ESTABLISHED 1882
CITY OF CULTURE AND HERITAGE

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Friday, September 6, 2013
9 a.m. to 2 p.m.
Winter Park Community Center

AGENDA

9 a.m.	Discussion of Agenda
9:10 a.m.	Strategic Planning Process
9:40 a.m.	Undergrounding of Electric Lines
10:30 a.m.	Break
10:40 a.m.	City Bus or Circulator System
11:20 a.m.	Downtown Parking
Noon	Lunch
12:30 p.m.	Gateway Corridors
1:15 p.m.	Urban Forestry Management
2 p.m.	Adjourn

UNDERGROUNDING OF ELECTRIC LINES

CITY OF WINTER PARK, FLORIDA
ESTABLISHED 1882
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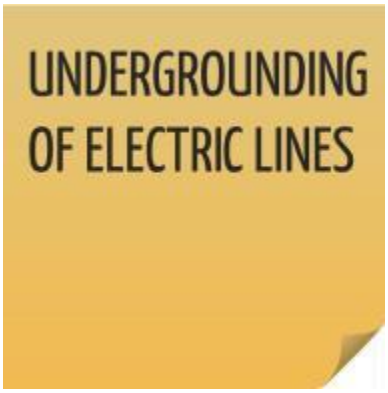


BACKGROUND:

One of the main selling points in the campaign to acquire the electric system was to use the profits to underground the system. Each strategic planning session since the acquisition also included undergrounding as a top initiative.

At the last City Commission meeting, there was discussion about the health of the reserves in the Electric Fund. The City Manager stated he thought the policy was to build to a new working capital equal to 90 days operating expenses. The actual policy is 45 days as adopted in 2011. That would represent a net working capital balance of $5.14 million. We expect to be at approximately $5.4 million by the end of this fiscal year but $1 million of that is because we have not yet spent the budget for the Electric Operating Center.

The revised pro forma attached reflects a 10-year plan to put the rest of the system underground. It also reflects the associated reduction in tree trimming costs and routine capital associated with this aggressive schedule.

STRATEGIC QUESTIONS:

1. **Is undergrounding still a community priority?**
2. **If yes, at what level?**
    a. Out of profits of system?
    b. Out of part of the profits of the system?
    c. At a specific annual amount and adjust rates accordingly?
3. **Is the currently adopted priority list (based upon reliability issues and tree conflicts) still the desired method for going forward?**
    a. Alternative – gateway corridors first?
    b. Alternative – front property lines first, back property lines last?

STAFF RECOMMENDATIONS:

- Staff believes undergrounding is still a community priority.
- Pursue a 10-year strategy for undergrounding with the understanding that undergrounding is discretionary and the schedule may need adjustment if unforeseen circumstances arise.
- Continue with the current priority list because it was designed to give the biggest bang for our buck in improving reliability, reducing tree impacts and saving future operating costs.
- Direct the City Manager not to shift any more General Fund cost to the Electric Utility until the undergrounding is complete and reserves meet the established goals.

ATTACHMENTS:

- Electric pro forma (revised)
- Copy of undergrounding priority plan
- Undergrounding Strategies
- Campaign materials "promising" undergrounding
- 2008 Survey Results
- 2008 Strategy Map
- 2012 Strategy Map

Electric Pro Forma

UNDERGROUNDING OF ELECTRIC LINES

Electric Services Fund Pro-Forma

(Modified from previously presented pro forma to reflect an aggressive ten year undergrounding schedule and related reductions to tree trimming and routine capital expenditures)

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Electric Sales:										
Purchased Power	28,293,129	26,464,157	27,108,529	28,517,375	29,620,503	30,734,457	32,415,573	32,244,124	32,542,313	32,852,838
Non-Purchased Power	18,381,759	18,629,758	18,930,773	19,302,108	19,650,517	20,003,655	20,410,077	20,658,892	20,952,606	21,251,411
Other Operating Revenues	230,892	239,395	248,152	257,173	266,464	276,034	285,891	296,043	306,501	317,271
Investment Earnings	25,593	25,849	26,366	27,025	27,701	28,393	29,103	29,831	30,576	31,341
Use of Bond Proceeds	450,000	450,000	450,000	450,000	0	0	0	0	0	0
Total Inflows	47,381,373	45,809,158	46,763,820	48,553,681	49,565,185	51,042,539	53,140,644	53,228,890	53,831,996	54,452,861
General and Adminstrative	1,046,065	1,072,947	1,102,756	1,139,383	1,177,444	1,217,991	1,260,283	1,304,422	1,350,514	1,398,674
Operating Expenses	6,670,301	6,413,519	6,001,388	6,122,777	6,239,937	6,362,293	6,504,550	6,601,109	6,715,263	6,834,768
Purchased Power	28,293,129	26,464,157	27,108,529	28,517,375	29,620,503	30,734,457	32,415,573	32,244,124	32,542,313	32,852,838
Routine Capital	725,000	725,000	685,000	645,000	605,000	565,000	525,000	485,000	445,000	405,000
Undergrounding Power Lines	3,100,000	3,500,000	3,600,000	3,600,000	3,600,000	3,760,000	3,760,000	3,760,000	3,760,000	3,760,000
Principal on Debt	1,840,000	1,880,000	2,440,000	2,525,000	2,660,000	2,760,000	2,865,000	2,995,000	3,115,000	3,225,000
Interest on Debt	3,019,378	2,971,678	2,901,038	2,817,012	2,723,892	2,630,456	2,527,968	2,420,272	2,307,842	2,186,764
Operating Transfers Out	2,687,500	2,531,174	2,585,848	2,684,094	2,764,203	2,845,169	2,960,378	2,964,648	2,997,314	3,030,942
Total Outflows	47,381,373	45,558,475	46,424,560	48,050,641	49,390,979	50,875,366	52,818,752	52,774,575	53,233,246	53,693,987
Net Inflow (Outflow)	0	250,683	339,260	503,040	174,206	167,172	321,891	454,315	598,749	758,874

Undergrounding Priority Plan

UNDERGROUNDING OF ELECTRIC LINES

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year
1		**0.89**	**66.00**	**74.16**	**6.22**		**11.57**		**20.00**		**20.00**	**57.79**	**57.79**	**890,000.00**
	Greene (Cady Way to Sherbrooke)	0.61	49.00			10.00	6.85	20.00	13.71	20.00	13.71		57.79	
	Perth (Cady Way to Loch Lomond)	0.28	17.00			15.00	4.72	20.00	6.29	20.00	6.29		57.79	
2		**1.03**	**151.00**	**146.60**	**12.68**		**5.05**		**20.00**		**20.00**	**57.73**	**57.73**	**1,030,000.00**
	Summerfield (Greene to Ranger)	0.52	53.00			10.00	5.05	20.00	10.10	20.00	10.10		57.73	
	Whitehall (Lakemont to Greene)	0.51	98.00			0.00	0.00	20.00	9.90	20.00	9.90		57.73	
3		**0.84**	**83.00**	**98.81**	**8.42**		**6.67**		**20.00**		**20.00**	**55.08**	**55.08**	**840,000.00**
	Banchory, Berwick to Genius	0.56	45.00			10.00	6.67	20.00	13.33	20.00	13.33		55.08	
	Banchory, 609 Balmoral to 413 Balmoral	0.28	38.00			0.00	0.00	20.00	6.67	20.00	6.67		55.08	
4		**1.57**	**149.00**	**94.90**	**8.07**		**14.08**		**12.93**		**20.00**	**55.07**	**55.07**	**1,570,000.00**
	Edwin (Lander to Lakemont)	0.20	45.00			10.00	1.27	10.00	1.27	20.00	2.55		55.07	
	Lakemont (Edwin to Palmer)	0.08	62.00			15.00	0.76	10.00	0.51	20.00	1.02		55.07	
	Lakemont, Taylor to Arbor Park	0.58	8.00			15.00	5.54	10.00	3.69	20.00	7.39		55.07	
	Lakemont, Past Taylor	0.16	0.00			15.00	1.53	10.00	1.02	20.00	2.04		55.07	
	Lander (Aloma to Edwin)	0.09	7.00			10.00	0.57	10.00	0.57	20.00	1.15		55.07	
	Palmer (Lakemont to Temple)	0.46	27.00			15.00	4.39	20.00	5.86	20.00	5.86		55.07	
5		**1.15**	**312.00**	**271.30**	**23.80**		**6.78**		**20.00**		**3.25**	**53.84**	**53.84**	**187,000.00**
	Dana, Forrest to Randall	0.03	11.00			10.00	0.26	20.00	0.52	2.00	0.05		53.84	
	E Fawsett Rd, Forrest to Winterpark	0.17	17.00			10.00	1.48	20.00	2.96	5.00	0.74		53.84	
	E Rockwood Way, Forrest to 111 E Rockwood	0.01	0.00			0.00	0.00	20.00	0.17	2.00	0.02		53.84	
	E Rockwood Way (South Back Lot)	0.08	31.00			0.00	0.00	20.00	1.39	2.00	0.14		53.84	
	Forrest Rd, E Faswett to End of Line	0.24	73.00			10.00	2.09	20.00	4.17	5.00	1.04		53.84	
	Oakwood Way, Forrest to Winterpark	0.12	41.00			0.00	0.00	20.00	2.09	2.00	0.21		53.84	
	Randall Rd, Fawsett to End of Line	0.06	20.00			0.00	0.00	20.00	1.04	2.00	0.10		53.84	
	Spring Ln, Winterpark to End of Line	0.19	72.00			0.00	0.00	20.00	3.30	2.00	0.33		53.84	
	W Rockwood Way, Fawsett to Forrest	0.07	20.00			10.00	0.61	20.00	1.22	5.00	0.30		53.84	
	Winterpark, Fawsett to Spring	0.18	27.00			15.00	2.35	20.00	3.13	2.00	0.31		53.84	
6		**1.20**	**288.00**	**240.00**	**21.01**		**9.58**		**19.17**		**3.75**	**53.51**	**53.78**	**225,000.00**
	College Pt	0.11	21.00			10.00	0.92	20.00	1.83	2.00	0.18		53.78	
	Forest Ave, Lake Sue to Virginia	0.20	32.00			10.00	1.67	20.00	3.33	5.00	0.83		53.78	
	Glencoe Rd, Lake Sue to Stirling	0.21	50.00			10.00	1.75	20.00	3.50	2.00	0.35		53.78	
	Highland Rd, Lake Sue to Stirling	0.24	72.00			10.00	2.00	20.00	4.00	5.00	1.00		53.78	
	Hillcrest Ave, E Lk Sue to Virginai	0.07	26.00			10.00	0.58	20.00	1.17	2.00	0.12		53.78	
	Lakeview, Oxford to Stirling	0.10	14.00			10.00	0.83	10.00	0.83	5.00	0.42		53.78	
	Stirling, Lakeview to College Pt	0.16	24.00			10.00	1.33	20.00	2.67	5.00	0.67		53.78	
	Virginia Dr, Forest Ave to Dead End	0.06	7.00			10.00	0.50	20.00	1.00	2.00	0.10		53.78	
	Backlot between Highland/Hillcrest,Lk Sue to Virginia	0.05	42.00			0.00	0.00	20.00	0.83	2.00	0.08		53.78	
7		**1.45**	**222.00**	**153.10**	**13.26**		**10.62**		**19.45**		**10.30**	**53.62**	**53.62**	**746,500.00**
	Alabama (Mayfield to Harding)	0.18	40.00			15.00	1.86	20.00	2.48	20.00	2.48		53.62	
	Pine Tree, Via Lugano to Via Venetia	0.31	43.00			10.00	2.14	20.00	4.28	5.00	1.07		53.62	
	Via Lombardy, Via Tuscany to Via Venetia	0.14	20.00			10.00	0.97	20.00	1.93	5.00	0.48		53.62	
	Via Lugano, Via Tuscany to Isle of Sicilty	0.44	43.00			10.00	3.03	20.00	6.07	5.00	1.52		53.62	
	Via Tuscany, Howell Branch to Via Lugano	0.27	70.00			10.00	1.86	20.00	3.72	20.00	3.72		53.62	
	Via Tuscany, Via Lugano to 1781 Via Tuscany	0.07	5.00			10.00	0.48	20.00	0.97	20.00	0.97		53.62	
	Via Venetian	0.04	1.00			10.00	0.28	0.00	0.00	2.00	0.06		53.62	
8		**1.35**	**367.00**	**271.85**	**23.85**		**7.26**		**17.26**		**4.18**	**52.55**	**52.55**	**282,000.00**
	Lakehurst (Bonita to Phelps)	0.48	122.00			10.00	3.56	20.00	7.11	5.00	1.78		52.55	
	Phelps (Bryan to Woodland)	0.28	49.00			10.00	2.07	20.00	4.15	5.00	1.04		52.55	
	Sylvan (Aloma to Bryan)	0.22	86.00			10.00	1.63	20.00	3.26	5.00	0.81		52.55	
	Woodland (Bonita to Phelps)	0.37	110.00			0.00	0.00	10.00	2.74	2.00	0.55		52.55	
9		**1.14**	**89.00**	**78.07**	**6.57**		**15.00**		**10.00**		**20.00**	**51.57**	**51.57**	**1,140,000.00**
	Glenridge Way to Winterpark Rd	1.14	89.00			15.00	15.00	10.00	10.00	20.00	20.00		51.57	
10		**1.00**	**236.00**	**236.00**	**20.65**		**8.20**		**19.40**		**3.20**	**51.45**	**51.45**	**160,000.00**
	Byron (Edwin to Lander)	0.21	37.00			0.00	0.00	20.00	4.20	2.00	0.42		51.45	
	Green Tree (Palmer to Dead End)	0.12	65.00			10.00	1.20	20.00	2.40	2.00	0.24		51.45	
	Magnolia (Temple to 1550 Magnolia)	0.21	32.00			10.00	2.10	20.00	4.20	2.00	0.42		51.45	
	Palm (Temple to Arbor Park)	0.40	90.00			10.00	4.00	20.00	8.00	5.00	2.00		51.45	
	Palmer (Lakemont to Pineview)	0.06	12.00			15.00	0.90	10.00	0.60	2.00	0.12		51.45	
11		**1.26**	**332.00**	**263.49**	**23.10**		**6.63**		**13.41**		**7.46**	**50.60**	**50.60**	**470,000.00**
	1070 Fairbanks	0.06	9.00			0.00	0.00	10.00	0.48	10.00	0.48		50.60	
	Aragon, Orange to Denning	0.09	20.00			10.00	0.71	20.00	1.43	10.00	0.71		50.60	
	Bungalow, Minnesota to Denning	0.06	41.00			0.00	0.00	20.00	0.95	10.00	0.48		50.60	
	Holt, Pennsylvania to McIntyre	0.11	30.00			15.00	1.31	10.00	0.87	10.00	0.87		50.60	

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year
	huntington, Pennsylvania to Dead End	0.09	18.00			10.00	0.71	20.00	1.43	2.00	0.14		50.60	
	Huntington, Pennsylvania to Vitoria	0.16	11.00			10.00	1.27	20.00	2.54	10.00	1.27		50.60	
	Kentucky, Orlando to Ward	0.13	14.00			10.00	1.03	10.00	1.03	10.00	1.03		50.60	
	Maryland, East Back Lot	0.08	56.00			0.00	0.00	20.00	1.27	2.00	0.13		50.60	
	Marylandd, Holt to Vitoria	0.07	42.00			0.00	0.00	20.00	1.11	2.00	0.11		50.60	
	McIntyre, Holt to Huntington	0.05	50.00			0.00	0.00	20.00	0.79	2.00	0.08		50.60	
	N Kentucky, Ward to Denning	0.06	1.00			10.00	0.48	0.00	0.00	2.00	0.10		50.60	
	S Capen, Fairbanks to Orange	0.09	5.00			10.00	0.71	10.00	0.71	10.00	0.71		50.60	
	Vitoria, Lakevew to Huntington	0.05	7.00			10.00	0.40	20.00	0.79	2.00	0.08		50.60	
	W Fairbanks 860	0.11	20.00			0.00	0.00	0.00	0.00	10.00	0.87		50.60	
	W New England	0.05	8.00			0.00	0.00	0.00	0.00	10.00	0.40		50.60	
12		**0.97**	**272.00**	**280.41**	**24.61**		**5.57**		**2648.75**		**3420.22**	**6099.16**	**50.34**	**169,000.00**
	Oakhurst (Bonita to Phelps)	0.18	65.00			0.00	0.00	20.00	3.71	5.00	0.93		50.34	
	Tom Gurney (Temple to Via Tuscany)	0.30	105.00			10.00	3.09	20.00	6.19	5.00	1.55		50.34	
	Via Bella (Palmer to Dead End)	0.12	30.00			0.00	0.00	20.00	2.47	2.00	0.25		50.34	
	Via Del Mar (Back Lot North Side)	0.08	25.00			0.00	0.00	20.00	1.65	2.00	0.16		50.34	
	Via Luna (Via Del Mar to Dead End)	0.05	10.00			0.00	0.00	10.00	0.52	2.00	0.10		50.34	
	Woodmere (Temple to Via Tuscany)	0.24	37.00			10.00	2.47	20.00	4.95	2.00	0.49		50.34	
13		**1.24**	**127.00**	**102.42**	**8.74**		**13.03**		**10.00**		**21.41**	**53.18**	**49.29**	**1,240,000.00**
	Comstock, Denning to New York	0.48	52.00			10.00	3.87	20.00	7.74	20.00	7.74		49.29	
	Denning, Lyman to Canton	0.25	19.00			15.00	4.08	0.00	0.00	20.00	5.44		49.29	
	Lyman, Pennsylvania to Denning	0.27	30.00			10.00	2.18	0.00	0.00	20.00	4.35		49.29	
	S New York, Holt to Comstock	0.14	20.00			15.00	1.69	20.00	2.26	20.00	2.26		49.29	
	S. Pennsylvania, Fairbanks to Lyman	0.10	6.00			15.00	1.21	0.00	0.00	20.00	1.61		49.29	
14		**1.11**	**295.00**	**265.77**	**23.31**		**6.58**		**16.58**		**2.57**	**49.03**	**49.03**	**142,500.00**
	Fosgate, Glenridge to 2711 and 2803 Wright	0.73	200.00			10.00	6.58	20.00	13.15	2.00	1.32		49.03	
	Glenridge to 2216 Howard	0.17	31.00			0.00	0.00	10.00	1.53	2.00	0.31		49.03	
	Glenridge to 647 Howard	0.21	64.00			0.00	0.00	10.00	1.89	5.00	0.95		49.03	
15		**1.03**	**117.00**	**113.59**	**9.73**		**12.28**		**1288.06**		**1684.39**	**2994.47**	**48.88**	**950,000.00**
	Capen (Canton to New England)	0.21	33.00			15.00	3.06	20.00	4.08	20.00	4.08		48.88	
	New York (Canton to Morse	0.25	16.00			15.00	3.64	0.00	0.00	20.00	4.85		48.88	
	Vriginia (Canton to Comstock	0.41	53.00			10.00	3.98	10.00	3.98	20.00	7.96		48.88	
	West Morse, Virginia to Park	0.11	15.00			15.00	1.60	0.00	0.00	10.00	1.07		48.88	
	West Wellborne	0.05	15.00			10.00	0.93	0.00	0.00	10.00	0.93		48.88	
16		**1.17**	**228.00**	**194.87**	**16.98**		**1.20**		**15.98**		**14.02**	**48.18**	**48.18**	**820,000.00**
	Cady Way Trail	0.70	210.00			0.00	0.00	20.00	11.97	10.00	5.98		48.18	
	Golf Course (End of Ranger)	0.33	9.00			0.00	0.00	10.00	2.82	20.00	5.64		48.18	
	Ranger (Summerfield to end of feeder)	0.14	9.00			10.00	1.20	10.00	1.20	20.00	2.39		48.18	
17		**0.97**	**256.00**	**263.92**	**23.14**		**0.00**		**20.00**		**4.23**	**47.37**	**47.37**	**205,000.00**
	1834 Worthington to 708 Balmoral	0.42	128.00			0.00	0.00	20.00	8.66	5.00	2.16		47.37	
	407 Worthington to 649 Worthington	0.30	53.00			0.00	0.00	20.00	6.19	5.00	1.55		47.37	
	401 S Phelps to 617 Langholm	0.25	75.00			0.00	0.00	20.00	5.15	2.00	0.52		47.37	
18		**0.83**	**77.00**	**92.77**	**7.88**		**15.00**		**4.10**		**20.00**	**46.97**	**46.97**	**830,000.00**
	Canton (Denning to Pennsylvania	0.34	34.00			15.00	6.14	10.00	4.10	20.00	8.19		46.97	
	Canton, Denning to Pennsylvania	0.37	27.00			15.00	6.69	0.00	0.00	20.00	8.92		46.97	
	Canton, S. New York to S. Park	0.11	4.00			15.00	1.99	0.00	0.00	20.00	2.65		46.97	
	Canton, New york to Park	0.01	12.00			15.00	0.18	0.00	0.00	20.00	0.24		46.97	
19		**0.93**	**125.00**	**134.41**	**11.59**		**5.59**		**21.72**		**7.69**	**46.59**	**46.59**	**232,500.00**
	2223 Via Tuscany	0.06	2.00			0.00	0.00	20.00	1.29	5.00	0.32		46.59	
	Cove Trail, Temple Trail-1	0.30	60.00			0.00	0.00	20.00	6.45	5.00	1.61		46.59	
	Cove Trail, Temple Trail-2	0.55	5.00			0.00	0.00	10.00	5.91	5.00	2.96		46.59	
	Cypress Ln, Azalea Pl to Via Tuscany	0.08	8.00			10.00	0.86	20.00	1.72	5.00	0.43		46.59	
	Moss Ln, Via Tuscany to Venetian Way	0.15	22.00			10.00	1.61	20.00	3.23	5.00	0.81		46.59	
	Poinciana, Via Tuscany to Azalea Pl	0.13	8.00			10.00	1.40	10.00	1.40	5.00	0.70		46.59	
	Venetian Way, from Via Tuscany	0.07	6.00			10.00	0.75	10.00	0.75	5.00	0.38		46.59	
	Venetian Way, Howell Branch to Poinciana	0.09	14.00			10.00	0.97	10.00	0.97	5.00	0.48		46.59	
20		**1.28**	**134.00**	**104.69**	**8.94**		**10.66**		**7.27**		**19.53**	**46.40**	**46.40**	**1,250,000.00**
	650 Swoope Ave	0.06	5.00			0.00	0.00	0.00	0.00	10.00	0.47		46.40	
	Denning, Canton to Swoope	0.10	8.00			15.00	1.17	0.00	0.00	20.00	1.56		46.40	
	Denning, Canton to Webster	0.19	5.00			15.00	2.23	0.00	0.00	20.00	2.97		46.40	
	N. Capen, Swoope to Depugh	0.07	6.00			10.00	0.55	10.00	0.55	20.00	1.09		46.40	
	N. Knowles, Deadend to Canton	0.11	22.00			10.00	0.86	10.00	0.86	20.00	1.72		46.40	
	Swoope, Denning to Park Ave	0.68	72.00			10.00	5.31	10.00	5.31	20.00	10.63		46.40	

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year	
	Swoope, Knowles to Interlachen	0.07	16.00			10.00	0.55	10.00	0.55	20.00	1.09		46.40		
21		**1.49**	**348.00**	**233.56**	**20.43**		**6.14**		**14.50**		**5.03**	**46.10**	**46.10**	**375,000.00**	
	1934 Strathaven to 2020 Strathhaven	0.12	34.00			0.00	0.00	20.00	1.61	2.00	0.16		46.10		
	681 Balmoral to 644 Balmoral	0.09	6.00			10.00	0.60	20.00	1.21	2.00	0.12		46.10		
	Balmoral, Summerfield to 649 Balmoral	0.11	11.00			10.00	0.74	20.00	1.48	5.00	0.37		46.10		
	BF33009 to East of Lakemont	0.05	0.00			10.00	0.34	0.00	0.00	5.00	0.17		46.10		
	BF3309 to West of Lakemont (winter park towers)	0.09	3.00			0.00	0.00	0.00	0.00	10.00	0.60		46.10		
	Glenridge Way to 1810 Lakemont Cemetary	0.20	64.00			15.00	2.01	10.00	1.34	10.00	1.34		46.10		
	Glenridge Way to Fleet Peoples Pk	0.17	30.00			15.00	1.71	0.00	0.00	10.00	1.14		46.10		
	Strathhaven, Lakemont to 1934 Strathhaven	0.12	50.00			0.00	0.00	20.00	1.61	5.00	0.40		46.10		
	Summerfield to Natalen	0.22	70.00			0.00	0.00	20.00	2.95	2.00	0.30		46.10		
	Woodcrest, East of Lakemont	0.11	15.00			10.00	0.74	20.00	1.48	2.00	0.15		46.10		
	400 S. Lakemont	0.21	65.00			0.00	0.00	20.00	2.82	2.00	0.28		46.10		
22		**0.70**	**263.00**	**375.71**	**33.11**		**2.29**		**7.29**		**3.03**	**45.71**	**45.71**	**106,000.00**	
	111 N Lakemont to 1851 Mizell	0.03	8.00			0.00	0.00	10.00	0.43	2.00	0.09		45.71		
	161 Burks Cir to 130 Phelps Ave	0.02	11.00			0.00	0.00	10.00	0.29	2.00	0.06		45.71		
	161 S Lakemont to 1705 Carolee	0.16	15.00			0.00	0.00	0.00	0.00	5.00	1.14		45.71		
	1811 Carollee to 1780 Mizell	0.03	15.00			0.00	0.00	20.00	0.86	2.00	0.09		45.71		
	1874 Grinnell to 180 Phelps	0.15	100.00			0.00	0.00	20.00	4.29	2.00	0.43		45.71		? Road type
	1891 Carollee to 133 Benmore	0.01	0.00			10.00	0.14	20.00	0.29	2.00	0.03		45.71		? Road type
	201 N Lakemont to 1795 Greenwich	0.10	25.00			15.00	2.14	0.00	0.00	2.00	0.29		45.71		
	331 S Lakemont to 1755 Grinnell Terr	0.12	39.00			0.00	0.00	0.00	0.00	2.00	0.34		45.71		
	Whitehall, West of Lakemont	0.08	50.00			0.00	0.00	10.00	1.14	5.00	0.57		45.71		
23		**1.25**	**70.00**	**56.00**	**4.60**		**16.92**		**3.84**		**20.00**	**45.36**	**45.36**	**1,250,000.00**	
	157 N Lakemont to 1848 Lockberry	0.29	36.00			15.00	3.48	0.00	0.00	20.00	4.64		45.36		
	Aloma, DC7108 to DC1970	0.48	34.00			20.00	7.68	0.00	0.00	20.00	7.68		45.36		
	Lakemont, Lockberry to Anzel	0.48	0.00			15.00	5.76	10.00	3.84	20.00	7.68		45.36		
24		**0.90**	**4.00**	**4.44**	**0.00**		**15.00**		**10.00**		**20.00**	**45.00**	**45.00**	**900,000.00**	
	Temple, Via Sienna to Howell Branch	0.90	4.00			15.00	15.00	10.00	10.00	20.00	20.00		45.00		
25		**0.97**	**116.00**	**119.59**	**10.27**		**4.33**		**16.19**		**719.23**	**750.01**	**44.74**	**603,500.00**	
	2075 Loch Lomond	0.05	6.00			0.00	0.00	20.00	1.03	10.00	0.52		44.74		
	2061 Dundee	0.03	6.00			0.00	0.00	20.00	0.62	2.00	0.06		44.74		
	400 Dundee	0.16	14.00			0.00	0.00	20.00	3.30	10.00	1.65		44.74		
	Benmore (Mizell to Dundee)	0.11	36.00			0.00	0.00	10.00	1.13	5.00	0.57		44.74		
	Dundee (Perth to Lakemont)	0.24	17.00			10.00	2.47	20.00	4.95	20.00	4.95		44.74		??? Check mileage change from .45 to .12
	Loch Lomond (Perth to Glenwood)	0.18	30.00			10.00	1.86	20.00	3.71	20.00	3.71		44.74		
	Mizell (Loch Lomond to Perth)	0.07	7.00			0.00	0.00	20.00	1.44	10.00	0.72		44.74		
	Nairn (Loch Lomond to St. Andrews)	0.13	39.00			0.00	0.00	10.00	2.74	2.00	0.55		44.74		
26		**1.50**	**420.00**	**280.00**	**24.58**		**0.00**		**17.87**		**2.00**	**44.44**	**44.44**	**150,000.00**	
	Brookshire (Greene to Fitzwalter)	0.50	155.00			0.00	0.00	20.00	6.67	2.00	0.67		44.44		
	Brookshire (Greene to Lochberry)	0.20	62.00			0.00	0.00	20.00	2.67	2.00	0.27		44.44		
	Cady Way (2110 Cady Way)	0.04	15.00			0.00	0.00	10.00	0.27	2.00	0.05		44.44		
	Cady Way (Entrance to Ward Park)	0.14	10.00			0.00	0.00	0.00	0.00	2.00	0.19		44.44		
	Fifeshire (Greene to Fitzwalter)	0.12	26.00			0.00	0.00	20.00	1.60	2.00	0.16		44.44		
	Forfarshire (Greene to Fitzwalter)	0.11	50.00			0.00	0.00	20.00	1.47	2.00	0.15		44.44		
	Forfarshire (Southside)	0.13	28.00			0.00	0.00	20.00	1.73	2.00	0.17		44.44		
	Middleton (Greene to Fitzwalter)	0.26	74.00			0.00	0.00	20.00	3.47	2.00	0.35		44.44		
27		**0.99**	**241.00**	**243.43**	**21.31**		**6.95**		**16.85**		**2.14**	**47.24**	**44.36**	**99,000.00**	
	Arlington Pl, Melrose to Fairfax	0.10	20.00			0.00	0.00	20.00	2.02	2.00	0.20		44.36		
	Clarendon, Oxford to Pennsylvania	0.13	30.00			0.00	0.00	20.00	2.63	2.00	0.26		44.36		
	Essex R, Oxford to Fairfax	0.24	60.00			10.00	2.42	20.00	4.85	2.00	0.48		44.36		
	Fairfax, Pennsylvania to Ricmond	0.13	36.00			10.00	1.31	10.00	1.31	2.00	0.26		44.36		
	Melrose Ave, Pennsylvania to Richmond	0.19	15.00			10.00	1.92	10.00	1.92	2.00	0.38		44.36		
	Oxford, Oxford to Clarendon	0.06	48.00			10.00	1.29	10.00	1.29	2.00	0.26		44.36		
	Richmond Rd, Fairfax to Melrose	0.14	32.00			0.00	0.00	20.00	2.83	2.00	0.28		44.36		
28		**1.19**	**268.00**	**225.21**	**19.69**		**1.43**		**18.40**		**4.65**	**44.17**	**44.17**	**276,500.00**	
	Arbor Park, Oneco to Hibiscus	0.17	17.00			10.00	1.43	20.00	2.86	10.00	1.43		44.17		
	Hibiscus to Deadend Pole	0.02	4.00			0.00	0.00	10.00	0.17	10.00	0.17		44.17		
	Hibiscus, Arbor Park to Sunset	0.14	25.00			0.00	0.00	20.00	2.35	10.00	1.18		44.17		
	Pine, Arbor Park to Phelps	0.17	15.00			0.00	0.00	20.00	2.86	5.00	0.71		44.17		
	Pineview Cir to End of Line	0.27	102.00			0.00	0.00	20.00	4.54	2.00	0.45		44.17		
	Arbor Park, Oneco to Pine	0.25	48.00			0.00	0.00	20.00	4.20	2.00	0.42		44.17		
	901 N. Lakemont	0.17	57.00			0.00	0.00	10.00	1.43	2.00	0.29		44.17		

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year
29		**0.98**	**49.00**	**50.00**	**4.06**		**18.16**		**3.67**		**18.16**	**44.06**	**44.06**	**890,000.00**
	Aloma (From Sub to Lander)	0.28	0.00			20.00	5.71	0.00	0.00	20.00	5.71		44.06	
	Aloma (Sub to Harris)	0.52	24.00			20.00	10.61	0.00	0.00	20.00	10.61		44.06	
	Mayflower (Aloma to Dead End)	0.18	25.00			10.00	1.84	20.00	3.67	10.00	1.84		44.06	
30		**0.91**	**167.00**	**183.52**	**15.97**		**3.52**		**18.02**		**6.48**	**43.99**	**43.99**	**295,000.00**
	From Lakemont East to End of Line	0.18	75.00			0.00	0.00	10.00	1.98	2.00	0.40		43.99	
	Temple Trail, Howell Branch to Cove Tr	0.32	30.00			10.00	3.52	20.00	7.03	10.00	3.52		43.99	
	2111 Via Tuscany to Deadend	0.19	35.00			0.00	0.00	20.00	4.18	10.00	2.09		43.99	
	Via Tuscany, to 1260 Whitesell	0.16	12.00			0.00	0.00	20.00	3.52	2.00	0.35		43.99	
	Sharon Place	0.06	15.00			0.00	0.00	20.00	1.32	2.00	0.13		43.99	
31		**1.12**	**269.00**	**240.18**	**21.02**		**3.75**		**13.57**		**5.59**	**43.94**	**43.94**	**313,000.00**
	Buckingham, Harmon to Westchester	0.11	27.00			0.00	0.00	20.00	1.96	2.00	0.20		43.94	
	Canterbury, Harmon to Westchester	0.11	41.00			0.00	0.00	20.00	1.96	5.00	0.49		43.94	
	Cavendish, Harmon to Suffolk	0.03	5.00			0.00	0.00	20.00	0.54	2.00	0.05		43.94	
	Devon, Harmon to Westchester	0.11	38.00			0.00	0.00	20.00	1.96	2.00	0.20		43.94	
	Harmon, Orlando to Clay	0.42	53.00			10.00	3.75	10.00	3.75	10.00	3.75		43.94	
	Orange Ave, Harmon to Westchester	0.15	42.00			0.00	0.00	0.00	0.00	2.00	0.27		43.94	
	Pelham, Harmon to Westchester	0.08	27.00			0.00	0.00	20.00	1.43	2.00	0.14		43.94	
	Suffolk, Harmon to Westchester	0.11	36.00			0.00	0.00	20.00	1.96	5.00	0.49		43.94	
32		**1.06**	**266.00**	**250.94**	**21.98**		**0.75**		**17.55**		**3.58**	**43.87**	**43.87**	**190,000.00**
	2026 Kimbrace to 2117 Whitehall	0.36	85.00			0.00	0.00	20.00	6.79	2.00	0.68		43.87	
	2294 Hawick Ln to 100 St Andrews	0.08	1.00			10.00	0.75	10.00	0.75	5.00	0.38		43.87	
	409 Langholm to 649 Langholm	0.19	37.00			0.00	0.00	20.00	3.58	2.00	0.36		43.87	
	660 Darcey to 430 Darcey	0.25	54.00			0.00	0.00	20.00	4.72	2.00	0.47		43.87	
	St Andrews, 200 St Andrews to 2400 Aloma	0.18	89.00			0.00	0.00	10.00	1.70	10.00	1.70		43.87	
33		**1.12**	**237.00**	**211.61**	**18.48**		**11.43**		**4.46**		**8.96**	**43.32**	**43.32**	**501,500.00**
	111 Orlando Ave	0.02	0.00			0.00	0.00	0.00	0.00	2.00	0.04		43.32	
	1400 Fairbanks Ave.	0.07	32.00			10.00	0.63	10.00	0.63	10.00	0.63		43.32	
	151 Orlando Ave	0.02	2.00			0.00	0.00	0.00	0.00	10.00	0.18		43.32	
	231 Orlando Ave	0.03	1.00			0.00	0.00	0.00	0.00	10.00	0.27		43.32	
	351 Orlando Ave	0.02	10.00			0.00	0.00	0.00	0.00	2.00	0.04		43.32	
	459 Orlando	0.01	3.00			0.00	0.00	0.00	0.00	10.00	0.09		43.32	
	701 Orlando Ave	0.12	11.00			0.00	0.00	0.00	0.00	10.00	1.07		43.32	
	Fairbanks, Orlando to Lakeview	0.38	92.00			20.00	6.79	0.00	0.00	10.00	3.39		43.32	
	Fairview, Killarney to Orlando	0.09	16.00			10.00	0.80	10.00	0.80	10.00	0.80		43.32	
	Grove Ave (backlot, both sides)	0.17	21.00			10.00	1.52	20.00	3.04	5.00	0.76		43.32	
	Trovillion Ave, Lake to Orlando	0.19	49.00			10.00	1.70	0.00	0.00	10.00	1.70		43.32	
34		**1.70**	**380.00**	**223.53**	**19.54**		**0.00**		**19.18**		**4.49**	**43.20**	**43.20**	**381,500.00**
	2403 Mandan Tr to 2406 Tioga Tr	0.07	20.00			0.00	0.00	20.00	0.82	2.00	0.08		43.20	
	2635 Temple Dr. to 1409 Howell Branch	0.09	15.00			0.00	0.00	20.00	1.06	10.00	0.53		43.20	
	Anaconda, Wampi to Rapidan	0.04	3.00			0.00	0.00	20.00	0.47	2.00	0.05		43.20	
	Chantilly, Drum to Howell Branch	0.19	27.00			0.00	0.00	20.00	2.24	2.00	0.22		43.20	
	Drum, Chantilly to Lolissa	0.18	42.00			0.00	0.00	20.00	2.12	2.00	0.21		43.20	
	3111 Temple Trl. To 1440 Howell Branch	0.26	100.00			0.00	0.00	20.00	3.06	10.00	1.53		43.20	
	Lolissa, Howell Branch to Lake Wampi	0.29	48.00			0.00	0.00	20.00	3.41	5.00	0.85		43.20	
	Modac, Wampi Tr to End of Line	0.06	12.00			0.00	0.00	20.00	0.71	2.00	0.07		43.20	
	Sanbina, Drum to Howell Branch	0.22	56.00			0.00	0.00	20.00	2.59	2.00	0.26		43.20	
	Sweetwater Tr, Wampi to Rapidan	0.02	3.00			0.00	0.00	20.00	0.24	2.00	0.02		43.20	
	Tuskaloosa, Lolissa to Rapidan	0.02	3.00			0.00	0.00	20.00	0.24	2.00	0.02		43.20	
	Tuskaloosa, Wampi to Rapidan	0.02	5.00			0.00	0.00	20.00	0.24	2.00	0.02		43.20	
	Sanbina	0.17	28.00			0.00	0.00	20.00	2.00	2.00	0.20		43.20	
	Howell Branch into Public Works Compound	0.07	18.00			0.00	0.00	0.00	0.00	10.00	0.41		43.20	
35		**1.22**	**180.00**	**147.54**	**12.76**		**3.93**		**20.00**		**6.38**	**43.07**	**43.07**	**389,000.00**
	Camellia, Orchid to Denning	0.22	40.00			10.00	1.80	20.00	3.61	10.00	1.80		43.07	
	Garden Dr, orchid to Denning	0.16	24.00			0.00	0.00	20.00	2.62	5.00	0.66		43.07	
	Grover, Orchid to Denning	0.15	15.00			0.00	0.00	20.00	2.46	2.00	0.25		43.07	
	Mead Ave, Orchid to Denning	0.09	27.00			0.00	0.00	20.00	1.48	2.00	0.15		43.07	
	Orchid Ave, Denning to Garden	0.26	27.00			10.00	2.13	20.00	4.26	10.00	2.13		43.07	
	S. Denning, Mead Gardens	0.34	47.00			0.00	0.00	20.00	5.57	5.00	1.39		43.07	
36		**1.17**	**243.00**	**207.69**	**18.13**		**4.36**		**14.70**		**5.87**	**43.06**	**43.06**	**343,500.00**
	100 St Andrew to 2525 Cady Way	0.04	6.00			10.00	0.34	0.00	0.00	2.00	0.07		43.06	
	2200 Glenwood to 2020 Aloma	0.24	26.00			10.00	2.05	10.00	2.05	10.00	2.05		43.06	
	2292 Hawick to 230 Narin Dr	0.17	70.00			0.00	0.00	20.00	2.91	5.00	0.73		43.06	

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year
	230 Narin to 2190 Aloma	0.14	30.00			10.00	1.20	20.00	2.39	5.00	0.60		43.06	
	428 Selkirk to 2199 Whitehall	0.36	68.00			0.00	0.00	20.00	6.15	2.00	0.62		43.06	
	2516 Aloma, BF3541	0.01	16.00			20.00	0.17	0.00	0.00	2.00	0.02		43.06	
	Edinburgh (Aloma to Glenwood)	0.07	13.00			10.00	0.60	0.00	0.00	20.00	1.20		43.06	
	St Andrews to 2340 Glenwood	0.14	14.00			0.00	0.00	10.00	1.20	5.00	0.60		43.06	
37		**1.57**	**326.00**	**207.64**	**18.12**		**6.11**		**14.52**		**3.83**	**42.59**	**42.59**	**301,000.00**
	Chestnut (Temple to Phelps)	0.38	102.00			10.00	2.42	10.00	2.42	5.00	1.21		42.59	
	Mayfield (Alabama to Temple)	0.28	30.00			0.00	0.00	20.00	3.57	2.00	0.36		42.59	
	Mayfield (Temple to Sunset)	0.10	24.00			10.00	0.64	20.00	1.27	5.00	0.32		42.59	
	Via Del Mar (Via Luna to Temple)	0.07	11.00			0.00	0.00	20.00	0.89	2.00	0.09		42.59	
	Via Estrella (Via Luna to Temple)	0.17	53.00			0.00	0.00	20.00	2.17	2.00	0.22		42.59	
	Mayfield, Alabama Way to Alabama	0.09	23.00			0.00	0.00	20.00	1.15	2.00	0.11		42.59	
	Place Vendome	0.48	83.00			10.00	3.06	10.00	3.06	5.00	1.53		42.59	
38		**1.53**	**83.00**	**54.25**	**4.44**		**18.10**		**0.00**		**20.00**	**42.55**	**42.55**	**1,530,000.00**
	Indiana Ave, Orlando to Buckingham	0.29	38.00			10.00	1.90	0.00	0.00	20.00	3.79		42.55	
	Orlando, Webster to Indiana	1.24	45.00			20.00	16.21	0.00	0.00	20.00	16.21		42.55	
39		**1.01**	**33.00**	**32.67**	**2.52**		**20.00**		**0.00**		**20.00**	**42.52**	**42.52**	**1,010,000.00**
	Orlando E Side, Symonds to Leith	1.01	33.00			20.00	20.00	0.00	0.00	20.00	20.00		42.52	
40		**1.21**	**253.00**	**209.09**	**18.25**		**10.00**		**11.82**		**2.25**	**42.32**	**42.32**	**136,000.00**
	Hibiscus (Temple to End of Line)	0.73	171.00			10.00	6.03	10.00	6.03	2.00	1.21		42.32	
	Oneco (Temple to End of Line)	0.25	38.00			10.00	2.07	20.00	4.13	2.00	0.41		42.32	
	Via Contessa (Via Lugano to Via Genoa)	0.10	16.00			10.00	0.83	20.00	1.65	5.00	0.41		42.32	
	Place Picardy	0.13	28.00			10.00	1.07	0.00	0.00	2.00	0.21		42.32	
41		**1.56**	**291.00**	**186.54**	**16.24**		**7.72**		**12.37**		**5.87**	**42.21**	**42.21**	**458,000.00**
	Brookview, Halifax East	0.06	12.00			10.00	0.38	10.00	0.38	5.00	0.19		42.21	
	Halifax, Oakhurst to Suffield	0.07	19.00			10.00	0.45	20.00	0.90	2.00	0.09		42.21	
	West of Lakemont to Oakhurst	0.13	47.00			0.00	0.00	0.00	0.00	2.00	0.17		42.21	
	Lakemont to West to Phelps	0.13	66.00			0.00	0.00	10.00	0.83	2.00	0.17		42.21	
	Lakemont, Pine to Palmer	0.13	4.00			15.00	1.25	0.00	0.00	20.00	1.67		42.21	
	Mayfield, Phelps to Deadend	0.09	9.00			10.00	0.58	20.00	1.15	2.00	0.12		42.21	
	Morton Rd, East of Lafayette	0.04	6.00			10.00	0.26	0.00	0.00	2.00	0.05		42.21	
	Oakhurst, Lakemont to Halifax	0.20	24.00			10.00	1.28	20.00	2.56	2.00	0.26		42.21	
	Taylor, Lakemont to Lander	0.15	23.00			10.00	0.96	20.00	1.92	2.00	0.19		42.21	
	Taylor, Lakemont to Phelps	0.12	15.00			10.00	0.77	10.00	0.77	2.00	0.15		42.21	
	Windsor, Lakemont to Phelps	0.16	46.00			0.00	0.00	20.00	2.05	10.00	1.03		42.21	
	Yorkshire, Lakemont so Suffield	0.28	20.00			10.00	1.79	10.00	1.79	10.00	1.79		42.21	
42		**0.93**	**80.00**	**86.02**	**7.28**		**11.56**		**8.92**		**13.98**	**41.74**	**41.74**	**650,000.00**
	Leith, Orlando to End of Line	0.31	19.00			10.00	3.33	20.00	6.67	10.00	3.33		41.74	
	Minnesota, Orlando to Barnum	0.37	38.00			15.00	5.97	0.00	0.00	20.00	7.96		41.74	
	Palmetto, Orlando to Denning	0.21	18.00			10.00	2.26	10.00	2.26	10.00	2.26		41.74	
	Orlando Ave (Lombardis)	0.04	5.00			0.00	0.00	0.00	0.00	10.00	0.43		41.74	
43		**0.90**	**119.00**	**132.22**	**11.40**		**7.78**		**12.22**		**10.00**	**41.40**	**41.40**	**450,000.00**
	Azalea Tennis Courts	0.25	50.00			10.00	2.78	0.00	0.00	10.00	2.78		41.40	
	S. Denning 700	0.20	15.00			0.00	0.00	10.00	2.22	10.00	2.22		41.40	
	S. Denning, Minnesota to End of Line	0.45	54.00			10.00	5.00	20.00	10.00	10.00	5.00		41.40	
44		**1.44**	**177.00**	**122.92**	**10.57**		**11.28**		**3.13**		**16.39**	**41.36**	**41.36**	**1,180,000.00**
	Comstock, Orlando to Dead End	0.19	33.00			10.00	1.32	10.00	1.32	10.00	1.32		41.36	
	Harper, Fairbanks to Morse	0.33	31.00			10.00	2.29	0.00	0.00	10.00	2.29		41.36	
	Holt, Denning to Orange	0.20	17.00			15.00	2.08	0.00	0.00	20.00	2.78		41.36	
	Kentucky, Ward to Denning	0.11	20.00			10.00	0.76	10.00	0.76	20.00	1.53		41.36	
	Pennsylvania, Holt to Minnesota	0.17	18.00			15.00	1.77	0.00	0.00	20.00	2.36		41.36	
	S Denning, Fairbanks to Minnesota	0.29	33.00			10.00	2.01	0.00	0.00	20.00	4.03		41.36	
	Ward, Comstock to S. Kntucky	0.15	25.00			10.00	1.04	10.00	1.04	20.00	2.08		41.36	
45		**1.04**	**128.00**	**123.08**	**10.58**		**9.38**		**4.13**		**17.13**	**41.22**	**41.22**	**891,000.00**
	254 Balfour	0.02	0.00			0.00	0.00	0.00	0.00	2.00	0.04		41.22	
	Balfour (Aloma to Dead End	0.36	21.00			10.00	3.46	0.00	0.00	20.00	6.92		41.22	
	Cady Way (Cady Way park to Perth	0.37	39.00			15.00	5.34	10.00	3.56	20.00	7.12		41.22	
	St. Andrews Apts. 2nd Entrance	0.04	29.00			0.00	0.00	0.00	0.00	2.00	0.08		41.22	
	St. Andrews Apts. 3rd Entrance	0.13	35.00			0.00	0.00	0.00	0.00	10.00	1.25		41.22	
	St. Andrews Apts. On Balfour	0.06	4.00			0.00	0.00	10.00	0.58	10.00	0.58		41.22	
	Substation to Balfour	0.06	0.00			10.00	0.58	0.00	0.00	20.00	1.15		41.22	
46		**1.10**	**268.00**	**243.64**	**21.33**		**3.91**		**13.18**		**2.71**	**41.13**	**41.13**	**149,000.00**
	Alice (Pineview to Palmer)	0.23	82.00			0.00	0.00	0.00	0.00	2.00	0.42		41.13	

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year
	Bell Place	0.11	25.00			0.00	0.00	20.00	2.00	2.00	0.20		41.13	
	Bonita (Palmer to Dale)	0.20	35.00			10.00	1.82	20.00	3.64	5.00	0.91		41.13	
	Elm (Temple to Sunset)	0.17	24.00			10.00	1.55	10.00	1.55	2.00	0.31		41.13	
	Glenarden (Edwin to Taylor)	0.12	28.00			0.00	0.00	10.00	1.09	2.00	0.22		41.13	
	Lake Knowles Cir	0.09	28.00			0.00	0.00	20.00	1.64	2.00	0.16		41.13	
	Pineview Cir	0.12	38.00			0.00	0.00	20.00	2.18	2.00	0.22		41.13	
	Sunset (Palmer to Mayfield)	0.06	8.00			10.00	0.55	20.00	1.09	5.00	0.27		41.13	
47		**1.25**	**261.00**	**208.80**	**18.23**		**3.52**		**15.76**		**3.30**	**40.80**	**40.80**	**206,000.00**
	Chestnut, Arbor Park to Deadend	0.15	50.00			0.00	0.00	10.00	1.20	2.00	0.24		40.80	
	Elm, Woodale to Phelps	0.10	19.00			0.00	0.00	0.00	0.00	5.00	0.40		40.80	
	Phelps, Palmer to Palm	0.34	38.00			10.00	2.72	20.00	5.44	5.00	1.36		40.80	
	Pine, Arbor Park to End of Line	0.19	51.00			0.00	0.00	20.00	3.04	2.00	0.30		40.80	
	Spruce Ave, Arbor Park to End of Line	0.18	48.00			0.00	0.00	10.00	1.44	2.00	0.29		40.80	
	Walnut, Arbor Park to Deadend	0.19	32.00			0.00	0.00	20.00	3.04	2.00	0.30		40.80	
	Woodale, Elm to Spruce	0.10	23.00			10.00	0.80	20.00	1.60	5.00	0.40		40.80	
48		**0.60**	**87.00**	**145.00**	**12.54**		**8.67**		**14.67**		**5.67**	**41.54**	**40.65**	**170,000.00**
	Henkel CIR	0.40	56.00			10.00	6.67	20.00	13.33	5.00	3.33		40.65	
	New England (Alexander to Chase)	0.08	10.00			15.00	2.00	10.00	1.33	10.00	1.33		40.65	
	Osceola Ct	0.12	21.00			0.00	0.00	0.00	0.00	5.00	1.00		40.65	
49		**1.21**	**309.00**	**255.37**	**22.38**		**3.39**		**10.83**		**3.91**	**40.50**	**40.50**	**236,500.00**
	1280 Park Ave	0.05	16.00			0.00	0.00	0.00	0.00	2.00	0.08		40.50	
	1300 Raintree Pl	0.08	13.00			0.00	0.00	0.00	0.00	2.00	0.13		40.50	
	1330 Park Ave	0.06	27.00			0.00	0.00	0.00	0.00	2.00	0.10		40.50	
	1910 Summerland	0.04	11.00			0.00	0.00	20.00	0.66	2.00	0.07		40.50	
	460 Park Ave	0.05	16.00			0.00	0.00	0.00	0.00	2.00	0.08		40.50	
	Dixie Pwy, Ibis to Summerland	0.10	18.00			10.00	0.83	20.00	1.65	5.00	0.41		40.50	
	Greencove, Summerland to Park	0.15	21.00			10.00	1.24	10.00	1.24	5.00	0.62		40.50	
	Ibis Ct	0.26	80.00			0.00	0.00	20.00	4.30	5.00	1.07		40.50	
	Summerland, Williams to Dixie Pwy	0.16	27.00			10.00	1.32	10.00	1.32	5.00	0.66		40.50	
	Summerway	0.10	33.00			0.00	0.00	10.00	0.83	5.00	0.41		40.50	
	Cardinal Ct	0.10	30.00			0.00	0.00	10.00	0.83	2.00	0.17		40.50	
	Raintree Place (backlot Line)	0.06	17.00			0.00	0.00	0.00	0.00	2.00	0.10		40.50	
50		**1.48**	**257.00**	**173.65**	**15.09**		**8.31**		**13.45**		**3.55**	**40.40**	**40.40**	**263,000.00**
	Cortland (Aloma to Alberta)	0.12	12.00			10.00	0.81	10.00	0.81	5.00	0.41		40.40	
	Cortland (Aloma to Osceola)	0.16	25.00			10.00	1.08	0.00	0.00	2.00	0.22		40.40	
	Grove (Sylvan to Harris)	0.13	25.00			10.00	0.88	20.00	1.76	10.00	0.88		40.40	
	Harris (Aloma to Goodrich)	0.24	40.00			10.00	1.62	0.00	0.00	2.00	0.32		40.40	
	Harris (Grove to Roundelay)	0.18	31.00			10.00	1.22	20.00	2.43	5.00	0.61		40.40	
	Hollywood (Phelps to Harris)	0.09	14.00			10.00	0.61	20.00	1.22	2.00	0.12		40.40	
	Mizell (Hall to Ward)	0.13	49.00			0.00	0.00	20.00	1.76	2.00	0.18		40.40	
	Overlook (Grove to Aloma)	0.12	14.00			0.00	0.00	20.00	1.62	5.00	0.41		40.40	
	Phelps (Mizell to Aloma)	0.26	38.00			10.00	1.76	20.00	3.51	2.00	0.35		40.40	
	Sylvan (Grove to Overlook)	0.05	9.00			10.00	0.34	10.00	0.34	2.00	0.07		40.40	
51		**1.41**	**299.00**	**212.06**	**18.52**		**6.31**		**11.49**		**3.65**	**39.96**	**39.96**	**257,000.00**
	845 Swoope Ave	0.02	0.00			0.00	0.00	10.00	0.14	10.00	0.14		39.96	
	Anchorage Ct	0.11	36.00			0.00	0.00	10.00	0.78	5.00	0.39		39.96	
	Callahan, Capen to Pennsylvania	0.08	29.00			0.00	0.00	10.00	0.57	2.00	0.11		39.96	
	Depugh, Capen to Pennsylvania	0.05	25.00			0.00	0.00	10.00	0.35	2.00	0.07		39.96	
	Dunbar, Capen to Pennsylvania	0.06	27.00			0.00	0.00	10.00	0.43	2.00	0.09		39.96	
	Dunbar, North Back Lot	0.06	12.00			0.00	0.00	20.00	0.85	2.00	0.09		39.96	
	Kiwi Circle	0.04	23.00			10.00	0.28	20.00	0.57	2.00	0.06		39.96	
	Mayfield, Alabama to Alabama Way	0.08	20.00			10.00	0.57	20.00	1.13	2.00	0.11		39.96	
	Mayfield, South Backlot	0.04	15.00			0.00	0.00	20.00	0.57	2.00	0.06		39.96	
	McKean Cir	0.14	34.00			0.00	0.00	20.00	1.99	5.00	0.50		39.96	
	N Pennsylvania, Swoope to Callahan	0.11	9.00			15.00	1.17	0.00	0.00	2.00	0.16		39.96	
	New York, Whipple to Cole	0.07	0.00			15.00	0.74	0.00	0.00	20.00	0.99		39.96	
	Old England (Palmer to Dead End)	0.05	5.00			0.00	0.00	20.00	0.71	5.00	0.18		39.96	
	Old England (Palmer to Webster)	0.16	16.00			10.00	1.13	0.00	0.00	2.00	0.23		39.96	
	Via Genoa, Via Lugano to Via Contessa	0.10	8.00			10.00	0.71	20.00	1.42	2.00	0.14		39.96	
	Via Amalfi, Via Lugano to Pine Tree	0.03	3.00			10.00	0.21	20.00	0.43	2.00	0.04		39.96	
	Via Palermo, Via Lombardy to Via Lugano	0.06	3.00			10.00	0.43	20.00	0.85	2.00	0.09		39.96	
	Seminole Drive, Georgia to Cherokee	0.05	16.00			10.00	0.35	20.00	0.71	2.00	0.07		39.96	
	Harding Place	0.10	18.00			10.00	0.71	0.00	0.00	2.00	0.14		39.96	

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year
52		**1.18**	**83.00**	**70.34**	**5.88**		**17.86**		**6.36**		**23.81**	**53.91**	**39.24**	**971,000.00**
	1701 Lee Rd, Hidden Pond	0.19	26.00			0.00	0.00	20.00	3.22	20.00	3.22		39.24	
	Lee Rd, Orlando to Aldrich	0.42	11.00			20.00	14.47	0.00	0.00	20.00	14.47		39.24	
	Lee Road (south side Benjamin to Bennett)	0.20	9.00			20.00	3.39	0.00	0.00	20.00	3.39		39.24	
	Oak Grove Court	0.31	28.00			0.00	0.00	10.00	2.63	10.00	2.63		39.24	
	1693 Lee Road	0.06	9.00			0.00	0.00	10.00	0.51	2.00	0.10		39.24	
53		**1.11**	**209.00**	**188.29**	**16.40**		**11.40**		**1.17**		**9.68**	**38.65**	**38.65**	**537,500.00**
	Gene St, Orlando to Nicolet	0.15	38.00			10.00	1.35	0.00	0.00	10.00	1.35		38.65	
	Michigan, Orlando to Wisconsin	0.11	34.00			10.00	0.99	10.00	0.99	10.00	0.99		38.65	
	Michigan, Schultz to Wisconsin	0.07	42.00			0.00	0.00	0.00	0.00	5.00	0.32		38.65	
	Miller Ave, Orlando to Wisconsin	0.19	30.00			10.00	1.71	0.00	0.00	10.00	1.71		38.65	
	Minnesota, Orlando to Nicolet	0.45	40.00			15.00	6.08	0.00	0.00	10.00	4.05		38.65	
	Schultz Ave, Indiana to Harmon	0.02	8.00			10.00	0.18	10.00	0.18	10.00	0.18		38.65	
	Schutlz, Minnesota to Miller	0.12	17.00			10.00	1.08	0.00	0.00	10.00	1.08		38.65	
54		**1.09**	**191.00**	**175.23**	**15.23**		**7.71**		**12.11**		**3.40**	**38.45**	**38.45**	**185,500.00**
	Diana, Juanita Rael to Dixie	0.16	20.00			10.00	1.47	10.00	1.47	5.00	0.73		38.45	
	Dixie, Williams to Sunnyside	0.05	18.00			10.00	0.46	10.00	0.46	2.00	0.09		38.45	
	Gainsway	0.15	44.00			0.00	0.00	0.00	0.00	2.00	0.28		38.45	
	Green Oaks Ct	0.08	15.00			10.00	0.73	20.00	1.47	2.00	0.15		38.45	
	Juanita Rael, Sunnsyside to Bettmar	0.11	24.00			10.00	1.01	10.00	1.01	5.00	0.50		38.45	
	Legion Dr, Dixie to End of Line	0.20	28.00			10.00	1.83	20.00	3.67	2.00	0.37		38.45	
	Summerland, Dixie to End of Line	0.24	32.00			10.00	2.20	10.00	2.20	5.00	1.10		38.45	
	Sunnyside, Dixie to 850 Juanita Rael	0.10	10.00			0.00	0.00	20.00	1.83	2.00	0.18		38.45	
55		**1.59**	**285.00**	**179.25**	**15.59**		**5.38**		**10.44**		**5.96**	**37.36**	**37.36**	**473,500.00**
	200 W Fairbanks	0.11	24.00			0.00	0.00	10.00	0.69	10.00	0.69		37.36	
	601 S. New York Ave.	0.03	3.00			0.00	0.00	0.00	0.00	10.00	0.19		37.36	
	501 Comstock	0.01	11.00			0.00	0.00	0.00	0.00	10.00	0.06		37.36	
	532 S. New York	0.09	7.00			0.00	0.00	0.00	0.00	10.00	0.57		37.36	
	595 Pennsylvania	0.12	20.00			0.00	0.00	0.00	0.00	10.00	0.75		37.36	
	731 French	0.03	3.00			0.00	0.00	20.00	0.38	2.00	0.04		37.36	
	777 French	0.03	6.00			0.00	0.00	20.00	0.38	5.00	0.09		37.36	
	840 New England	0.04	0.00			15.00	0.38	0.00	0.00	2.00	0.05		37.36	
	Capen, Fairbanks to Comstock	0.15	24.00			10.00	0.94	10.00	0.94	5.00	0.47		37.36	
	Capen, Lyman to New England	0.06	10.00			10.00	0.38	0.00	0.00	2.00	0.08		37.36	
	Douglas, Denning to Capen	0.10	25.00			0.00	0.00	10.00	0.63	2.00	0.13		37.36	
	French, Holt to Lakeview	0.13	17.00			10.00	0.82	20.00	1.64	5.00	0.41		37.36	
	Holt, Antonette to French	0.12	31.00			15.00	1.13	10.00	0.75	2.00	0.15		37.36	
	Keewin Center, Off Denning	0.31	75.00			0.00	0.00	10.00	1.95	10.00	1.95		37.36	
	Lakeview, French to Oxford	0.23	25.00			10.00	1.45	20.00	2.89	2.00	0.29		37.36	
	New England, Capen to 780 Ne England	0.03	4.00			15.00	0.28	10.00	0.19	2.00	0.04		37.36	
56		**0.98**	**202.00**	**206.12**	**17.99**		**1.84**		**14.69**		**2.58**	**37.10**	**37.10**	**126,500.00**
	Blairshire	0.52	94.00			0.00	0.00	10.00	5.31	2.00	1.06		37.10	
	Coldstream (Greene to Lochberry)	0.19	50.00			0.00	0.00	20.00	3.88	5.00	0.97		37.10	
	Natalen (Dunraven to Dead End)	0.18	34.00			10.00	1.84	20.00	3.67	2.00	0.37		37.10	
	Natalen (Lakemont to Dunraven)	0.09	24.00			0.00	0.00	20.00	1.84	2.00	0.18		37.10	
57		**1.21**	**258.00**	**213.22**	**18.62**		**4.71**		**9.83**		**3.60**	**36.77**	**36.77**	**218,000.00**
	751 New York	0.11	43.00			0.00	0.00	0.00	0.00	2.00	0.18		36.77	
	908 Railroad Ave	0.03	4.00			10.00	0.25	10.00	0.25	10.00	0.25		36.77	
	Carver St, Denning to Webster	0.13	16.00			10.00	1.07	0.00	0.00	2.00	0.21		36.77	
	Cherok, Holder to Solana	0.14	34.00			10.00	1.16	10.00	1.16	5.00	0.58		36.77	
	Dixon, Orlando to Solana	0.14	13.00			10.00	1.16	10.00	1.16	2.00	0.23		36.77	
	Louisiana, Park to Denning	0.13	22.00			10.00	1.07	10.00	1.07	10.00	1.07		36.77	
	Lyndale, Park to Willard	0.04	20.00			0.00	0.00	0.00	0.00	2.00	0.07		36.77	
	Northwood Cir	0.21	75.00			0.00	0.00	20.00	3.47	2.00	0.35		36.77	
	Ridgewood, Park to Willard	0.06	6.00			0.00	0.00	0.00	0.00	2.00	0.10		36.77	
	Waterfall & Misty Ln	0.14	19.00			0.00	0.00	20.00	2.31	2.00	0.23		36.77	
	Wilma Ave, Louisiana to Denning	0.05	6.00			0.00	0.00	10.00	0.41	2.00	0.08		36.77	
	900 N. Denning Ave	0.03	0.00			0.00	0.00	0.00	0.00	10.00	0.25		36.77	
58		**1.14**	**148.00**	**129.82**	**11.18**		**2.81**		**18.77**		**3.11**	**35.87**	**35.87**	**177,000.00**
	Banchory (Berwick to Greene)	0.14	10.00			0.00	0.00	10.00	1.23	5.00	0.61		35.87	
	Dunraven (Whitehall to Strathaven)	0.15	12.00			10.00	1.32	20.00	2.63	2.00	0.26		35.87	
	Gunn (Braemar to Dead End)	0.17	28.00			10.00	1.49	20.00	2.98	2.00	0.30		35.87	
	Middleton (Berwick to Greene)	0.14	19.00			0.00	0.00	20.00	2.46	5.00	0.61		35.87	

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year
	Sherbrooke (Layton to Dead End)	0.28	45.00			0.00	0.00	20.00	4.91	2.00	0.49		35.87	
	Smiley (Berwick to Greene)	0.14	22.00			0.00	0.00	20.00	2.46	5.00	0.61		35.87	
	Whitehall Cir	0.12	12.00			0.00	0.00	20.00	2.11	2.00	0.21		35.87	
59		**1.11**	**198.00**	**178.38**	**15.51**		**8.38**		**4.41**		**7.50**	**35.80**	**35.80**	**416,000.00**
	324 Interlachen	0.03	1.00			15.00	0.41	20.00	0.54	5.00	0.14		35.80	
	Canton (Interlachen to Deadend)	0.03	7.00			15.00	0.41	10.00	0.27	5.00	0.14		35.80	
	Carolina (New York to Vriginia)	0.08	10.00			10.00	0.72	0.00	0.00	10.00	0.72		35.80	
	Carolina (Virginia to Pennsylvania	0.06	18.00			10.00	0.54	0.00	0.00	2.00	0.11		35.80	
	Center (Canton to Morse)	0.08	1.00			0.00	0.00	0.00	0.00	10.00	0.72		35.80	
	Cloisters on Interlachen	0.03	6.00			0.00	0.00	0.00	0.00	10.00	0.27		35.80	
	Depugh (Capen to Pennsylvania)	0.05	15.00			0.00	0.00	0.00	0.00	2.00	0.09		35.80	
	English (Denning to Capen)	0.05	8.00			10.00	0.45	0.00	0.00	2.00	0.09		35.80	
	Garfield (Pennsylvania to New York	0.15	26.00			10.00	1.35	0.00	0.00	10.00	1.35		35.80	
	Morse (New York to Virginia)	0.12	15.00			15.00	1.62	0.00	0.00	10.00	1.08		35.80	
	Morse (Denning to Capen)	0.10	23.00			0.00	0.00	0.00	0.00	10.00	0.90		35.80	
	Morse (Knowles to Deadend)	0.12	11.00			15.00	1.62	10.00	1.08	10.00	1.08		35.80	
	Symonds (Denning to Capen)	0.08	22.00			10.00	0.72	10.00	0.72	2.00	0.14		35.80	
	457 Interlachen	0.05	9.00			0.00	0.00	20.00	0.90	2.00	0.09		35.80	
	208 Interlachen	0.02	17.00			0.00	0.00	20.00	0.36	2.00	0.04		35.80	
	North Knowles between Lincoln/Morse	0.06	9.00			10.00	0.54	10.00	0.54	10.00	0.54		35.80	
60		**1.18**	**91.00**	**77.12**	**6.48**		**16.43**		**3.47**		**15.84**	**42.23**	**35.23**	**715,000.00**
	915 Pennsylvania	0.11	27.00			0.00	0.00	0.00	0.00	10.00	0.93		35.23	
	Orlando Ave, East Side	0.18	8.00			20.00	3.05	0.00	0.00	10.00	1.53		35.23	
	Orlando, Friends to Monroe	0.25	2.00			20.00	7.96	0.00	0.00	20.00	7.96		35.23	
	Railroad, Webster to 1140 Solana	0.41	12.00			10.00	3.47	10.00	3.47	10.00	3.47		35.23	
	Galloway Dr	0.23	42.00			10.00	1.95	0.00	0.00	10.00	1.95		35.23	
61		**1.39**	**185.00**	**133.09**	**11.47**		**7.99**		**7.55**		**7.12**	**34.14**	**34.14**	**495,000.00**
	1499 Aloma	0.05	14.00			0.00	0.00	0.00	0.00	2.00	0.07		34.14	
	Bryan (Phelps to Lakemont)	0.13	18.00			10.00	0.94	20.00	1.87	2.00	0.19		34.14	
	Edwin (Lakemont to Phelps)	0.14	22.00			10.00	1.01	0.00	0.00	2.00	0.20		34.14	
	Lakemont (Anzle to Walker)	0.24	8.00			15.00	2.59	10.00	1.73	20.00	3.45		34.14	
	Phelps (Aloma to Edwin)	0.07	8.00			10.00	0.50	20.00	1.01	2.00	0.10		34.14	
	Shepherd (Aloma to Bryan)	0.11	12.00			10.00	0.79	10.00	0.79	2.00	0.16		34.14	
	Walker (Phelps to Lakemont)	0.30	58.00			10.00	2.16	10.00	2.16	2.00	0.43		34.14	
	Line Segment from Aloma between Lander/Publix Shopping Cente	0.35	45.00			0.00	0.00	0.00	0.00	10.00	2.52		34.14	
62		**0.99**	**87.00**	**87.88**	**7.44**		**4.09**		**4.85**		**17.58**	**33.96**	**33.96**	**870,000.00**
	Howell Branch, Lafayette to Lolissa	0.27	35.00			15.00	4.09	0.00	0.00	20.00	5.45		33.96	
	Howell Branch, Venetian Way to Lafayette	0.48	16.00				0.00	0.00	0.00	20.00	9.70		33.96	
	Sweetwater Tr to Modac	0.24	36.00			0.00	0.00	20.00	4.85	10.00	2.42		33.96	
63		**1.11**	**113.00**	**101.80**	**8.68**		**6.31**		**14.59**		**3.96**	**33.55**	**33.55**	**220,000.00**
	2403 Mandan Tr to 2429 Mandan Tr	0.16	4.00			0.00	0.00	20.00	2.88	2.00	0.29		33.55	
	Bessmore Dr, Lafayette to Chantilly	0.09	11.00			10.00	0.81	20.00	1.62	2.00	0.16		33.55	
	Border Dr, East of Lafayette	0.13	12.00			10.00	1.17	0.00	0.00	2.00	0.23		33.55	
	Lafayette, Place Vendome to Howell Branch	0.22	21.00			10.00	1.98	10.00	1.98	5.00	0.99		33.55	
	Mandan to Tioga Tr	0.19	35.00			0.00	0.00	20.00	3.42	10.00	1.71		33.55	
	Verona, Neola to Howell Branch	0.06	10.00			0.00	0.00	0.00	0.00	2.00	0.11		33.55	
	Cochise, Howell Branch to Mandan	0.26	20.00			10.00	2.34	20.00	4.68	2.00	0.47		33.55	
64		**0.58**	**65.00**	**112.07**	**9.60**		**4.31**		**10.00**		**17.41**	**41.32**	**33.25**	**505,000.00**
	1550 Gay Rd	0.08	10.00			0.00	0.00	10.00	1.38	10.00	1.38		33.25	
	201 Gay Road	0.07	14.00			0.00	0.00	10.00	1.21	10.00	1.21		33.25	
	Webster, from Executive Dr	0.18	15.00			0.00	0.00	10.00	3.10	20.00	6.21		33.25	
	Gay Road, Orlando to Executive	0.25	26.00			10.00	4.31	10.00	4.31	20.00	8.62		33.25	
65		**1.38**	**142.00**	**102.90**	**8.78**		**2.10**		**17.97**		**3.99**	**32.84**	**32.84**	**275,000.00**
	921 Virginia to 561 Virginia	0.23	34.00			0.00	0.00	20.00	3.33	5.00	0.83		32.84	
	Arjay to 750 Shiloh	0.12	23.00			0.00	0.00	20.00	1.74	5.00	0.43		32.84	
	Blueridge to 720 Arjay	0.60	10.00			0.00	0.00	20.00	8.70	2.00	0.87		32.84	
	Blueridge to Virginia	0.21	25.00			10.00	1.52	20.00	3.04	5.00	0.76		32.84	
	Blueridge, Glenridge to Arjay	0.08	10.00			10.00	0.58	20.00	1.16	10.00	0.58		32.84	
	Glenridge to Virginia (Winchester rear??)	0.14	40.00			0.00	0.00	0.00	0.00	5.00	0.51		32.84	
66		**1.09**	**207.00**	**189.91**	**16.54**		**0.00**		**11.01**		**5.00**	**32.55**	**32.55**	**272,500.00**
	2013 Kimbrace to 681 Brechin	0.49	115.00			0.00	0.00	0.00	0.00	5.00	2.25		32.55	
	431 Dunblane to 683 Dunblane	0.32	47.00			0.00	0.00	20.00	5.87	5.00	1.47		32.55	
	437 Dunraven to 681 Dunraven	0.28	45.00			0.00	0.00	20.00	5.14	5.00	1.28		32.55	

New Rank	Project Segments	Project Miles	Trees/ Segment	Trees/ Mile	Tree Pts	Road Type	Road Pts	Reliability Rating	Reliability Pts	Construction Type	Construction Pts	Total Points	Values	Cost per project and year
67		**1.21**	**133.00**	**109.92**	**9.41**		**8.26**		**10.00**		**4.43**	**32.10**	**32.10**	**268,000.00**
	Alberta (Aloma to Cortland)	0.20	18.00			10.00	1.65	10.00	1.65	5.00	0.83		32.10	
	Detmar (Trismen to Seymour)	0.13	19.00			10.00	1.07	10.00	1.07	2.00	0.21		32.10	
	Fletcher (Aloma to Alberta)	0.11	32.00			0.00	0.00	10.00	0.91	5.00	0.45		32.10	
	Jo-Al-CA (Aloma to Alberta)	0.10	22.00			0.00	0.00	10.00	0.83	2.00	0.17		32.10	
	Lakewood (Alberta to Trismen)	0.29	20.00			10.00	2.40	10.00	2.40	5.00	1.20		32.10	
	Seymour (Trismen to Detmar)	0.09	8.00			10.00	0.74	10.00	0.74	5.00	0.37		32.10	
	Trismen (Osceola to Detmar)	0.14	10.00			10.00	1.16	10.00	1.16	5.00	0.58		32.10	
	Trismen (Seymour to Lakewood)	0.15	4.00			10.00	1.24	10.00	1.24	5.00	0.62		32.10	
68		**1.46**	**179.00**	**122.60**	**10.54**		**7.88**		**3.29**		**7.88**	**29.59**	**29.59**	**575,500.00**
	1057 Bungalow	0.15	7.00			10.00	1.03	0.00	0.00	2.00	0.21		29.59	
	1313 S. Denning Dr	0.05	5.00			0.00	0.00	0.00	0.00	2.00	0.07		29.59	
	862 Orlando Ave	0.05	16.00			0.00	0.00	0.00	0.00	5.00	0.17		29.59	
	Aragaon, Orlando to Denning	0.08	6.00			10.00	0.55	0.00	0.00	10.00	0.55		29.59	
	Balch, Aragon to Minnesota	0.04	3.00			10.00	0.27	0.00	0.00	5.00	0.14		29.59	
	Cypress, Orange to Palmetto	0.17	44.00			10.00	1.16	0.00	0.00	10.00	1.16		29.59	
	Miles Ave, Aragon to Minnesota	0.10	8.00			10.00	0.68	10.00	0.68	10.00	0.68		29.59	
	Minnesota (Azalea to Pennsylvania)	0.12	10.00			15.00	1.23	0.00	0.00	10.00	0.82		29.59	
	Norfolk, Orlando to Westchester	0.24	20.00			10.00	1.64	10.00	1.64	10.00	1.64		29.59	
	Washington, Minnesota to Melrose	0.13	9.00			0.00	0.00	0.00	0.00	2.00	0.18		29.59	
	Balch, Southside Minnesota to Orlando	0.19	21.00			10.00	1.30	0.00	0.00	10.00	1.30		29.59	
	Oak Place	0.14	30.00			0.00	0.00	10.00	0.96	10.00	0.96		29.59	
69		**1.01**	**43.00**	**42.57**	**3.40**		**0.00**		**20.00**		**4.76**	**28.16**	**28.16**	**240,500.00**
	Arjay to 1730 Winchester	0.13	32.00			0.00	0.00	20.00	2.57	5.00	0.64		28.16	
	Blueridge to 1827 Laurelton Hall	0.08	5.00			0.00	0.00	20.00	1.58	2.00	0.16		28.16	
	Blueridge to 1880 Arjay	0.80	6.00			0.00	0.00	20.00	15.84	5.00	3.96		28.16	
70		**1.21**	**144.00**	**119.01**	**10.22**		**3.72**		**10.66**		**2.64**	**27.24**	**27.24**	**160,000.00**
	Kenwood, Beloit to Pansy	0.60	11.00			0.00	0.00	10.00	4.96	2.00	0.99		27.24	
	Oaks Blvd, Pansy to Beloit	0.11	58.00			0.00	0.00	10.00	0.91	2.00	0.18		27.24	
	Pansy, Kenwood to Pennsylvania	0.16	20.00			10.00	1.32	10.00	1.32	2.00	0.26		27.24	
	Sunnyside, Park to Dixie	0.26	40.00			10.00	2.15	10.00	2.15	5.00	1.07		27.24	
	Willard, Sunnyside to Lyndale	0.03	4.00			10.00	0.25	20.00	0.50	2.00	0.05		27.24	
	Backlot between Kenwood/Oaks from Pansy-Beloit	0.05	11.00			0.00	0.00	20.00	0.83	2.00	0.08		27.24	
71		**1.12**	**85.00**	**75.89**	**6.37**		**0.00**		**15.80**		**2.46**	**24.63**	**24.63**	**137,500.00**
	891 Lk Sue Ave to 651 Lk Sue	0.17	34.00			0.00	0.00	10.00	1.52	5.00	0.76		24.63	
	Glenridge to Virginia	0.15	35.00			0.00	0.00	0.00	0.00	2.00	0.27		24.63	
	Rear of 1931 Laurel Rd	0.80	16.00			0.00	0.00	20.00	14.29	2.00	1.43		24.63	

Total Project Miles
82.06

Total Cost over 10 years

36,169,500.00

TOTAL SPENT IN FISCAL YEAR 2013

3,278,500.00

Undergrounding Strategies

UNDERGROUNDING OF ELECTRIC LINES

Winter Park Electric Under Grounding Strategies

Existing

As of March 31, 2012 the electric system undergrounding project funded by the 2007 bond proceeds and as modified by the City Commission on February 14, 2011, has largely been completed. Pole removal on the Temple project is awaiting the removal of Brighthouse facilities. As a result of those bond projects, 8.6 miles of mainline feeders have been placed underground. Through 10 PLUG-IN projects, another 1.8 miles of primary overhead conductor have been placed underground. Staff estimates 79.2 miles of primary overhead conductor remain to be placed underground (does not include secondary conductor or customers' overhead electric services). Staff estimates that there is approximately 37 miles of secondary overhead conductor to be placed underground. The majority of secondary conductor is underbuild to overhead primary conductor and will placed underground at the same time as the primary conductor is placed underground. Staff estimates that there are 10-15 miles of secondary conductor that are separate from primary construction that will require undergrounding. Approximately 79 miles of primary electric system wire have been already placed underground (most of which was already underground at the time the system was purchased from Progress Energy Florida) however, approximately 35 miles of the existing "Progress" underground is due to be or near replacement age. Staff has not estimated the amount of secondary already placed underground. Alabama will be completed, all poles removed, by month's end.

Go Forward Strategy

Approximately 90 pole miles of overhead electric remain to be placed underground. The estimated cost to complete undergrounding is shown below:

Cost Category	**Estimate $ (000)**
U/G primary and secondary	$26,847
Premium Labor for FDOT projects and Management of Traffic	243
Landscape restoration	2,000
Subtotal Undergrounding	$29,090
Other undergrounding Costs:	
Decorative Street Light Fixtures	$15,706
Underground Services	25,000
Subtotal other undergrounding costs	$40,706
Total Estimated Undergrounding Cost	$69,796

Staff has identified three go forward strategies from a schedule/funding point of view and are summarized in the following table:

Funding		Expected Rate Impact	Estimated time
Source	$(000)		
1. Annual System Revenues (pay as you go)	4,200	0%	17 years
2. Annual System Revenues + 10% rate surcharge	8,900	10%	8 years
3. Bond Financing	75,000	0% ??	6-8 years??

Essentially there are three strategies:

1) Pay as you go strategy from electric system revenues. Staff believes that strategy can be implemented with little or no rate impact. That strategy would take 17 or more years to complete.
2) Implement a temporary surcharge to generate additional electric system revenues in order to accelerate undergrounding. A 10% surcharge would generate an additional $4.7 million per year which would allow completion of the undergrounding within 8 years and would require increasing rates by 10% for the eight year period.
3) The third strategy would be to borrow approximately $75 million to provide reserve funds and the funding for the undergrounding project. Debt service would be paid for by the same funds that would be used to fund the first strategy. No increases in rates are expected. In terms of schedule, the financing approach would probably not significantly accelerate undergrounding sooner than the estimated 8 years for strategy 2 above. The advantages of bonding are to not increase current rates, and to spread the costs of undergrounding among existing and future Winter Park Electric ~~issues~~. The biggest disadvantages are it adds debt to the Winter Park Electric balance sheet and it increases the cost as a result of 30 years of accrued interest.

The above three strategies boil down to three basic approaches. 1) Pay as you go and complete undergrounding in about 17 years. 2) Raise rates and accelerate undergrounding 3) borrow money and accelerate undergrounding.

Difficult Issues:

Decorative Lighting -The cost of undergrounding includes the cost of installing decorative lighting community wide which adds $15.7 million to the undergrounding cost. Currently decorative lighting is installed via an assessment driven decorative project in which our citizens vote and pay an adder to their electric bills over time. Some decorative lighting is installed as a part of streetscape projects funded by the City.

Overhead Services - Additionally, the above estimate includes $25 million to place customer overhead services underground. Heretofore, we have required customers to pay for the undergrounding of their overhead services. Unfortunately, our experience with customers

funding the undergrounding of their services, even with deeply discounted offers provided by the electric utility as a part of primary undergrounding such as Temple Dr. has not be very positive. Staff has therefore included the $25 million cost in the above estimate to completely underground the electric system.

The above estimates include no dollars to move Brighthouse (BHN) or other pole attachment facilities underground. Staff believes the City should take a tough position with BHN, Century Link and others that would require them to place company facilities underground.

Tree trimming- Electric system reliability and safety requires adequate clearance between primary and trees. Typically utilities, (even municipal utilities in tree cities) require 10' of clearance. There are two camps within the City of Winter Park. One very vocal camp complains about even modest trimming and it goes ballistic at 10'. Another significant camp (but less vocal) wants adequate clearance to insure electric system reliability. The adopted go forward strategy for undergrounding should take into consideration this issue. Staff believes a comprehensive plan/schedule may provide helpful perspective debate.

Cost considerations – a $79 million price tag for undergrounding is significant and exceeds the City's investment in existing facilities. In order to reduce the costs associated with undergrounding, several go forward strategies should be considered. In lieu of contracting out directional boring to subcontractors, ENCO is bringing on lineman with directional boring experience. As an experiment, we will be evaluating the costs of allowing ENCO to the directional boring in lieu of hiring other outside subcontractors. ENCO believes that the per foot cost of directional boring can by driven down by approximately 50%.

In addition to directional boring included in the above undergrounding cost, $2 million has been included in the estimate for landscape restoration. That estimate is based on experience to date we have experienced on recent undergrounding projects. A possible cost reduction strategy for landscape restoration would be to have the City provide such services.

Campaign materials

UNDERGROUNDING OF ELECTRIC LINES

Here's what you can count on from the City of Winter Park...

Securing a Valuable Asset for Winter Park

Buying the electric distribution system won't cost you any more than you're already paying in your monthly electric bill. Community ownership is the only way to fund undergrounding without raising rates or taxes.

Generating a Profit

Rather than shipping our profits to Progress Energy executives and shareholders, let's keep those profits in our community where they'll be re-invested into system improvements, such as undergrounding.

Working With Competitive Bids (No More Monopolies)

Progress Energy insists on a 30-year exclusive agreement. This is Winter Park's opportunity to select the best vendor through competitive bidding for our electric power needs.

$ $ $ $ DOLLARS AND SENSE $ $ $ $

The Independent Financial Study states that by charging the same rates as Progress Energy the City can expect to:

- Earn gross revenue over the life of the bonds in excess of $1 billion
- Earn an average annual **profit** of $3.2 million to reinvest in Winter Park
- Earn an annual return on investment of 10.3%

On September 9, vote "FOR" the issuance of revenue bonds to purchase the electric distribution system from Progress Energy.

Questions?

Call 407/599-3236 Or visit www.cityofwinterpark.org

A PUBLICATION PROVIDED BY THE CITY OF WINTER PARK

Why reward them for a record like this?

Leaks generate state fines for Progress Energy. "Oil leaks at Progress Energy substations have resulted in environmental penalties for the company and a state demand that the sites be cleaned up. . . . **[Florida] Department of Environmental Protection** investigators found oil leaks in transformers at 14 of 16 Orlando-area substations."

(Orlando Business Journal, June 20, 2003)

Progress Energy's Tax Credits Scrutinized. "**Internal Revenue Service** auditors have raised questions about one of the company's . . . synthetic fuel plants, potentially putting at risk hundreds of millions of dollars worth of annual tax credits."

(St. Petersburg Times, June 25, 2003)

A Legacy of Power Problems

". . . Florida Power didn't focus on the customer side." Bill Habermeyer, President, Progress Energy Florida.

(Orlando Business Journal, June 13, 2003)

No matter what Progress Energy says, ***actions speak louder than words.***

Vote "FOR" Vendor Competition on Sept 9th.

- ✓ Reliable Power
- ✓ Local Accountability
- ✓ Undergrounding
- ✓ Vendor Competition

Pd. pol. adv. by Winter Park Power Options

Winter Park Power Options
P.O. Box 1112
Winter Park, FL 32790-2112

Who do you believe? These esteemed local leaders...

The Hon. Paula Hawkins, former U.S. Senator

"Having been engaged in the regulation of the electric power industry in Florida and for the entire nation, I am intimately knowledgeable about the electric power industry. In my judgment, there is nothing to fear if Winter Park purchases the electric power system from Progress Energy. There is no doubt in my mind that the best choice for Winter Park residents is to vote for the bonds."

The Hon. Lou Frey, former U.S. Congressman

"I served on Gov. Bush's Energy 2020 Commission and to me, this is a common-sense deal. We're not giving anything up. We're getting the ability to negotiate the best power deal possible."

Former Mayor Dan Hunter

"Throughout the years, Winter Park has demonstrated over and over again the kind of thoughtful and responsible leadership required for an undertaking of this nature. I am confident that our community's leaders have made the right choice, and I support them."

Former Mayor Dave Johnston

"Nothing will change if you vote "FOR" the bonds. Your taxes won't change. Your electric bills won't change. Your police and fire services won't change. But you will see a difference: Better electric reliability, a commitment to undergrounding the wires and reinvesting the profits in Winter Park."

Russell Troutman, Former Winter Park City Attorney

"Please do not allow the naysayers to discourage you from a positive vote. Operating a utility is a historic and traditional function of government... Future generations will thank us – as we thank our founding fathers – for taking this step."

Your elected Winter Park City officials urge you to vote FOR the bonds

Mayor
Kip Marchman

Vice-Mayor
John Eckbert

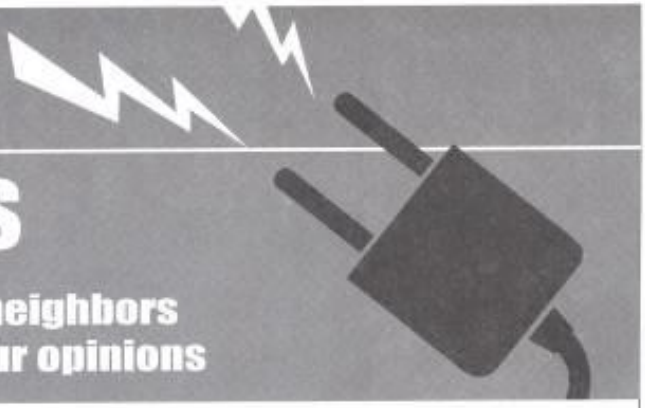
Commissioner
Barbara DeVane

Commissioner
Doug Metcalf

Winter Park Power Options

...Or Progress Energy?

Winter Park Power Options



Learn the facts, talk with your neighbors and city officials and share your opinions

Why is the Florida Power issue important? Citizens and businesses in Winter Park pay Florida Power approximately $30 million every year, totaling in excess of $600 million over a 20-year franchise. Choosing a power provider is the single most important economic decision the City Commission will have made in the past 30 years.

Why did the City Commissioners reject the contract offered by Florida Power? The Florida Power offer did NOT include a "right to repurchase" clause; it did NOT assure competitive pricing of electric power; it did NOT contain enforceable standards of reliability and service; it did NOT contain any plan for undergrounding electric facilities or provide for needed system improvements. It also included language that would allow Florida Power to eliminate the franchise fees which are an important part of the City's annual budget.

Has the City refused to re-enter into a franchise agreement with Florida Power? The City made clear that it would sign Florida Power's proposed franchise agreement if it included the additional terms and conditions required by the City to protect the quality, service and pricing of electricity to the City residents, and to protect the City's franchise revenue stream. The City adopted a new franchise ordinance including these terms, but Florida Power refused to sign it and filed a court action claiming the ordinance was illegal.

Why is the right to repurchase important? The right to repurchase is critical to ensuring that the City will again have negotiating leverage when the franchise expires. Without such a provision, Florida Power would virtually have a perpetual right to provide electric power in Winter Park without pricing limitations or service obligations. The right to repurchase has been included in all previous agreements.

Why is assuring competitive pricing for electric power, enforceable standards of reliability and service, and paying for needed system improvements important? Winter Park residents should receive high quality service at reasonable rates. These assurances were not included in the previous franchise agreement. Florida Power's system-wide outage rates are the highest among all investor-owned utilities in the state. For example, Winter Park residents were out of power on average for 150 minutes last year while Orlando residents were only out of power on average for 30 minutes. Now that a North Carolina company has purchased Florida Power, it is questionable as to how much attention Winter Park's reliability problems will receive. Since that purchase, the local customer service centers have been closed down and many staff relocated to North Carolina or were let go. Aging equipment will become worse unless significant investment in improvements is made.

Is Winter Park guaranteed continued payment of its franchise fees? In its new agreement, Florida Power inserted language that would permit it to abandon the collection and payment of franchise fees if another power supplier were to furnish power to customers in the City without also being required to pay a franchise fee. The occurrence of this situation is a likely possibility should the state undertake electric power deregulation as is happening in a number of states across the country.

What has been the reaction of Florida Power to the City's effort to evaluate its options under the franchise agreement? When the franchise ended last June, Florida Power initially stopped collecting and paying the franchise fees and refused to arbitrate a purchase price for its facilities in Winter Park, forcing the City to pursue various legal remedies to protect citizen rights and the City's revenue stream. Since then, Florida Power has employed numerous legal strategies in an effort to deny the City its rights. This effort is intended to force the City to accept a new agreement on Florida Power's terms. But, the courts have found in the City's favor on each major issue so far. The court ordered Florida Power into good faith arbitration proceedings and to pay over the franchise fees it has been holding back from the City.

What are the benefits of purchasing the electric system? The City will be able to seek competitive bids for operating the system and will be able to control the terms and conditions for services. Also, a consultant to the City determined that City ownership could lead to additional electric system earnings of $3.8 million per year without raising electric rates or property taxes. That $76 million over the same 20 years could be used to reduce electric rates, upgrade facilities, improve service and reliability, underground facilities, and for other municipal purposes.

Does the City of Winter Park have viable options for supplying electric power to its residents other than Florida Power? Yes, other private and public electric system operators have expressed an interest in becoming Winter Park's power provider. Of course, Florida Power also would have the opportunity to bid in a competitive environment for continuing its relationship with the City.

What influence can I have over this matter? Contact your City Commissioners and tell them you expect the City to:

1. acquire access to electric power for its residents in a competitive environment.
2. ensure that all agreements create a competitive bidding process at expiration (such as a "right to repurchase").
3. ensure that all agreements provide for competitive pricing of electric power, enforceable standards of reliability and service, and contain provisions for needed system improvements such as undergrounding of electric facilities.

MAKE YOUR VOICE HEARD !!!

If you're concerned about the future of Winter Park SPEAK UP !!!

If you're concerned about the safety and reliability of the electricity you receive SPEAK UP !!!

If you want to exercise your right to comment and vote on the issues affecting the citizens of Winter Park SPEAK UP !!!

Send an e-mail to speakup@winterparkpower.com and MAKE Your Voice Heard !!!

Winter Park REPORT

Summer 2003

A PUBLICATION PROVIDED BY THE CITY OF WINTER PARK www.cityofwinterpark.org

Inside This Issue...

Kenneth "Kip" Marchman Winter Park Mayor

Kenneth "Kip" Marchman

Dear Fellow Citizens,

On September 9, the citizens of Winter Park will have a unique opportunity to support our City at the polls. We want reliability, responsiveness and reasonable rates for our electricity, and there's only one way we're going to get them. A YES! vote for the City of Winter Park to purchase its electric distribution system will provide a re-investment fund for our community.

Unlike North Carolina-based Progress Energy, which distributes its profits through dividends to shareholders, we are responsible only to you, our citizens, and our dividends are increased reliability and control over electric rates.

We will remember this important election in years to come. As citizens, do we want to reflect on the opportunity we missed to support the place we call home, or do we want to proudly say that we took a vital step in promoting our quality of life and well being?

With pride, let's stand together and take responsibility for securing our future. I'll see you at the polls on September 9. Your YES! vote is a vote for Winter Park.

Sincerely,

Your Mayor and Fellow Citizen,
Kenneth "Kip" Marchman

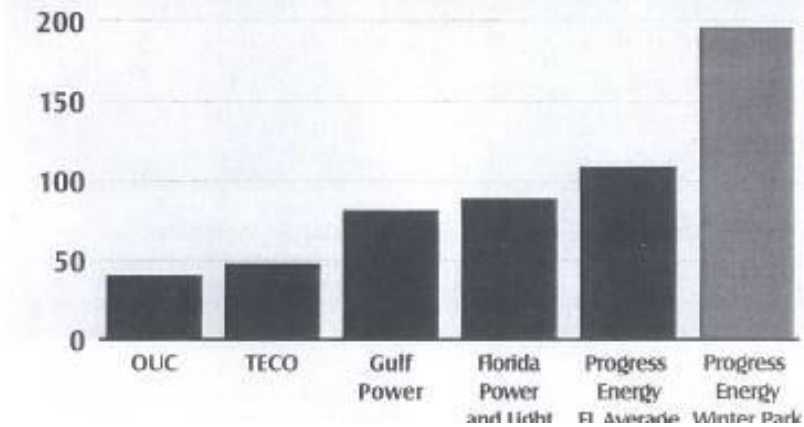
Reliability is Job 1

The Florida Public Service Commission ranks Progress Energy as the least reliable investor-owned utility in the State of Florida over the past 6 years. The next least reliable investor-owned utility is 23% more reliable.

Progress Energy's record in Winter Park is almost twice as bad as their system average with over 190 minutes of outage per Winter Park customer per year. That's over 3 hours per year.

Our Orlando neighbors experience less than 40 minutes of outage per customer per year - almost 1/5 the time a Winter Park customer has to go without power.

Average Minutes of Service Interruption Per Customer Per Year 1997-2002



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www.cityofwinterpark.org

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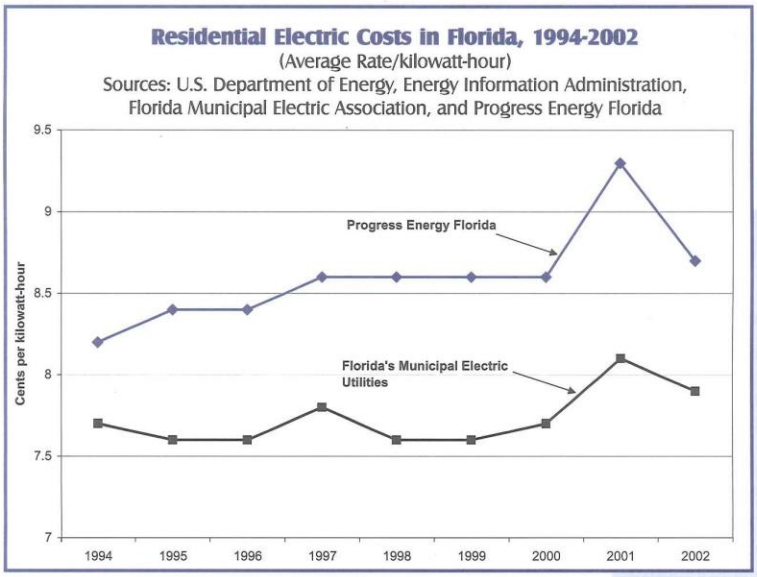
RELIABILITY–ACCOUNT

Community-Owned = Lower Costs...

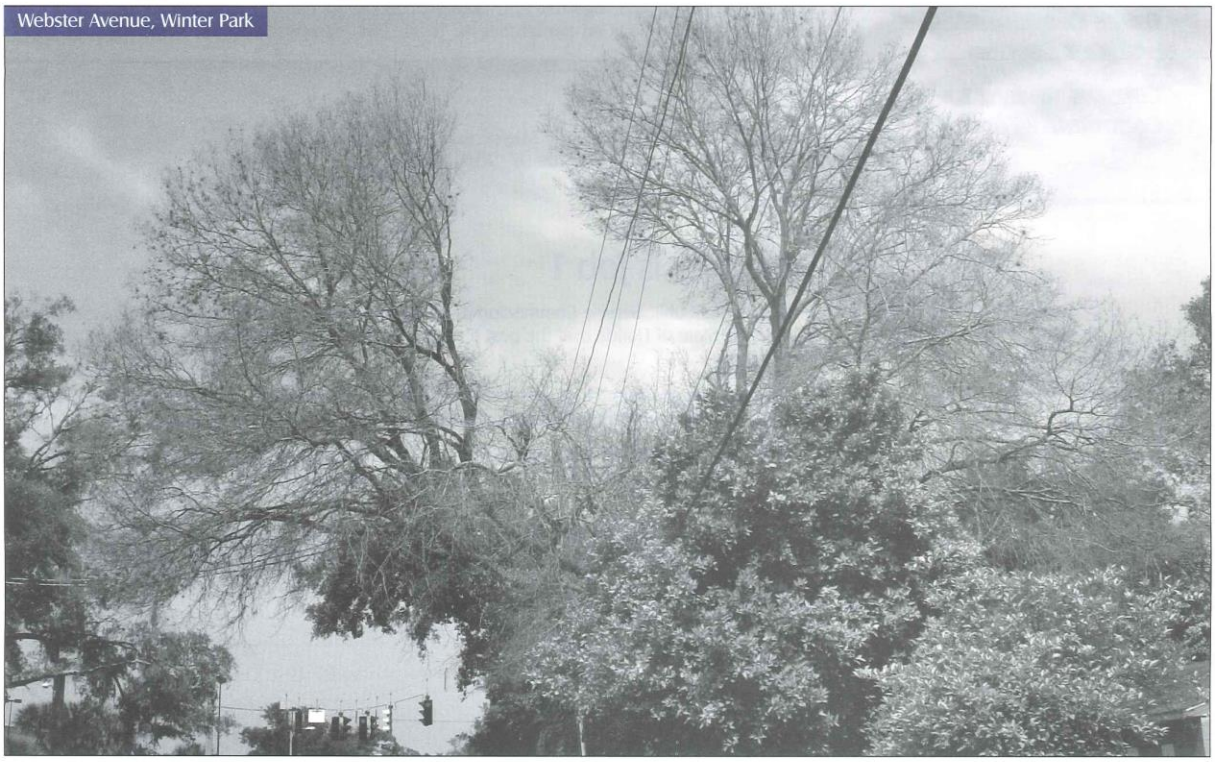


Data from the U. S. Department of Energy show that residential customers of investor-owned utilities (like Progress Energy) pay rates that average 16 percent higher than rates of community-owned systems.

For years, citizens in Winter Park have paid the highest residential rates allowed by the Florida Public Service Commission for the least reliable service.

Each year Progress Energy must submit to the Florida Public Service Commission a listing of its 3% worst performing electric distribution feeders in the State. While there are only 17 feeders serving Winter Park customers, 11 of those feeders have appeared on Progress Energy's listing of worst performing feeders during the last 10 years. Six of those feeders have appeared on the list multiple times.

Undergrounding Preserves Trees



"Overhead electric lines are one of our trees' worst enemies."

Lee Mackin, Winter Park City Arborist

In a recent survey of Winter Park citizens, quality of life issues topped the list of reasons people choose to live in Winter Park. One of the issues most frequently mentioned was the beautiful tree canopy. For years, Progress Energy's aggressive tree trimming and refusal to pay for underground lines has created V-cut trees and stunted natural growth.

If the City of Winter Park votes to purchase the electric distribution system, **profits from the system can be used to underground power lines**, which improves reliability while helping to protect Winter Park's tree canopy.

When you pay your $150 electric bill...where should it go?

Winter Park	Progress Energy/North Carolina
• Undergrounding	• High executive salaries (+$6 million bonus in 2002 for Progress Energy CEO)
• Reliability improvements	• Corporate overhead & taxes
• Ownership of our poles & wires	• $9.75 billion in debt
• To keep property taxes low and rates down	• Shareholder payouts
• Stronger local economy	

A *simple* choice.

Vote Sept. 9th ☑ 'FOR'

Reliability

Undergrounding

Local Accountability

Vendor Competition

Pd. Pol. Adv. By Winter Park Power Options

www.winterparkpower.com

Winter Park Power Options
P.O. Box 2112
Winter Park, FL 32790-2112
407-647-9512

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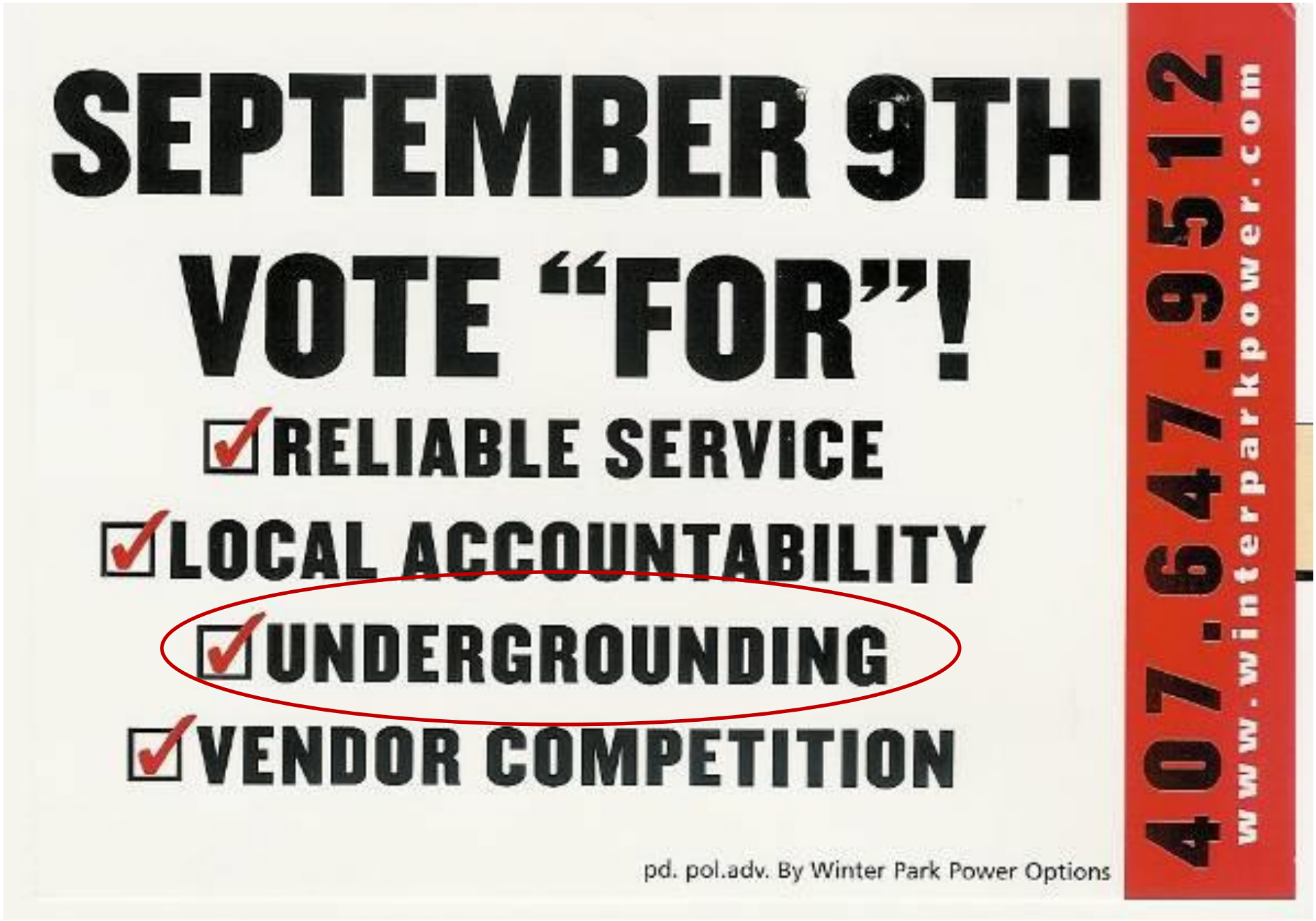
SEPTEMBER 9TH
VOTE "FOR"!
RELIABLE SERVICE
LOCAL ACCOUNTABILITY
UNDERGROUNDING
VENDOR COMPETITION
pd. pol.adv. By Winter Park Power Options
407.647.9512
www.winterparkpower.com

CITY OF WINTER PARK UPDATE

VOLUME X, NUMBER 1 | WWW.CITYOFWINTERPARK.ORG | JANUARY/FEBRUARY 2004

In This Issue ...

Winter Park City Hall
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Message From The Mayor

2003 year in review: the state of the city

It is truly remarkable how many significant challenges, projects and accomplishments were part of the historic year of 2003 for the City of Winter Park. Despite one of the most challenging budgets, the city, with the support of residents, businesses and numerous institutions and organizations, had an incredibly productive year. Following is an overview of the state of the city as we look back on the many projects and programs we, as a community, have accomplished together.

Police Department (WPPD)

- WPPD applied for and received a $40,000 grant from the state of Florida for increased bicycle patrol and neighborhood watch programs. This year, the department received over $100,000 in total grant funding.
- By taking over the school crossing guard program from the Orange County Sheriff's Office, WPPD has saved money and increased coverage.
- The department was the first in the county to train all of its officers in the Governor's mandated Weapons of Mass Destruction and Command Incident Control course.

Fire Rescue Department (WPFD)

- In June, our Fire and Police departments completed the move into the city's new state-of-the-art Public Safety Facility, which marked the culmination of five years of planning by the community.

- WPFD maintained international accreditation in 2003 and received over $100,000 worth of grants.
- The Life Safety Achievement Award was received for the ninth consecutive year from the International Association of Fire Chiefs.

Parks and Recreation

- Two of the most significant accomplishments for the Parks and Recreation Dept. have been the new Central Park Rose Garden and Dinky Dock Park improvements.
- The new Rose Garden design and pergola have created a beautiful south entrance to Central Park.

- A $182,000 Orange County grant provided lighting for Lake Island Park athletic fields.
- Winter Park H.S. and the Parks and Recreation Dept. worked together to create several new practice fields and add lighting at Showalter Field.
- Lake Island Park will become the venue for the Rollins College women's softball program with the construction of a new collegiate stadium.

Public Works

- The Public Works Dept. converted Fire Station 61 to the new Public Works Administration Offices at significant savings to the city.
- The department managed the construction process of the new Public Safety Facility, including the reconstruction of Virginia Ave. to provide on-street parking spaces, trees, decorative lighting and a brick intersection at Canton Ave.
- The department designed and constructed traffic improvements on Glenridge Way, Gen. Rees Rd. and for the Timberlane Shores neighborhood.
- Phase One of the Pennsylvania Ave. corridor enhancement project was completed.
- The Trismen Terrace storm water treatment project was completed along with curbing, bricking and decorative streetlights.

CONTINUED ON NEXT PAGE

Message From The Mayor Continued

- The construction of an underground pipe connecting Lake Island Park to Lake Killarney was completed.
- The Utility Div. completed the first phase of the Magnolia Water Treatment Facility improvements.
- Construction of the new Swoope Water Treatment Plant is underway and on schedule.

Planning & Community Development

- With the FDOT, the department finalized the redesign for U.S. Hwy. 17-92.
- Annexation of the Fairbanks Ave. and Lee Rd. corridors and the Kilshore Lane neighborhood was completed.
- Construction of the Railroad Ave. Residences — a mixed income project with community partners — will be completed this month.
- An additional 20 properties have been designated to the Winter Park Register of Historic Places and College Quarter was established as the city's first historic district.
- The housing rehabilitation grant program was initiated with the completion of seven homes in the West Winter Park CRA district and over 22 contracts.
- A design charrete was held for a new merchants association planning to promote the area along Orange Ave. as a "designer row."

Administration

- On Sept. 9, with the largest voter turnout since 1988, the citizens overwhelmingly approved a $49.8 million bond issue to purchase the electric distribution system from Progress Energy.
- At significant cost savings, Information Technology Services assisted the City Clerk's implementation of a paperless agenda package for city commissioners.

Economic and Cultural Development

- The department and its advisory board continue to facilitate initiatives to build, diversify and sustain the city's commercial tax base.
- Our partnership with Enzian Theater grows ever stronger as third Thursday popcorn flicks now attract upwards of 1,000 friends and families to its classic films at sunset in Central Park.
- By partnering with TSC Events and the *duPont REGISTRY*, the department hosted the Winter Park Concours d'Elegance Car Show, which is already regarded as one of the top shows of its kind in the country.

- The department continues to work closely with WLOQ radio to hold summer Jazz Jams in Central Park and an afternoon of jazz in May at Lake Island Park that attracted close to 10,000 people.

This year has been a year of many major accomplishments for the city and the community, and I look forward to meeting the challenges of 2004 as we continue to enhance the quality of life in Winter Park... Florida's premier urban village.

Sincerely,

Kenneth "Kip" Marchman
Mayor

Power Talk

Ongoing information about city power

The city staff and transition consultants have met with several entities interested in providing bulk power supply to the city. A power provider should be selected by early spring 2004.

The city's Utility Advisory Board, made up of Winter Park citizens and business representatives, has begun discussing various policy issues that will come before the City Commission for adoption over the next few months. Such issues include type of governance, transfer policies, undergrounding policies and financing issues.

At the Nov. 24 Commission meeting, the Commission approved development of a Reliability Enhancement and Undergrounding Plan. This plan will set forth the major capital and operating programs necessary when the city takes over operation of the system.

If you have specific questions or comments, please contact Asst. City Manager, Randy Knight, at 407-599-3236 or *rknight@cityofwinterpark.org*.

City News

- We congratulate the following city employees who were selected because of their outstanding contributions and commitment to service in 2003: **Police Officer of the Year**, Tim Volkerson; **Firefighter of the Year**, Lt. Richard Taylor; and **City Employee of the Year**, Wayne "Butch" Margraf (Traffic Engineer, Public Works Dept.).
- The **Police Dept. SWAT Team** recently participated in the annual "SWAT Round-Up" competition held in Orange County. With over 80 teams participating, the WPPD team finished in 20th Place in the overall competition and 1st Place for agencies with under 100 officers. The team, pictured here, included the following officers: Sgt. Randy Durkee, Ofc. Martin DeLaFlor, Ofc. Errol Colon, Ofc. Tim Volkerson, Ofc. Kevin Baker, Ofc. Garvin McComie, Ofc. Tom Gagne, Lt. Wayne Farrell.

- Three members of the **Fire Rescue Dept.** were recently selected to be a part of the Central Florida Urban Search and Rescue Team. Lt. Rich Taylor and Firefighter/Paramedic, Jimm Walsh, were selected as Rescue Specialists and Engineer, Brenda Weber, was selected as a Technical Search Specialist. Each member completes hundreds of hours of training to be eligible for selection. The Central Florida team is only the fourth in the state and also includes members from Orlando, Orange County and Seminole County fire departments.
- The Fire Rescue Dept. offers **babysitting classes** for teenagers 11 and up. Classes use the American Safety and Health Institute Childcare and Babysitting Safety curriculum. Students will learn the business of babysitting as well as safety and security procedures, basic child development, baby and child care, and first aid skills. Also included is American Heart Association Heartsaver CPR. Cost for the one-and-a-half-day course is $55 and includes all course handouts and supplies. The next classes are scheduled for March 12 - 13. For more info., contact Diane Kessluk at 407-599-3610.

2012 Strategy Map

UNDERGROUNDING OF ELECTRIC LINES

City of Winter Park Strategy Map Fiscal Year 2012

September 26, 2011

DRIVERS

Vision

Be the best place to live, work and play in Florida for today's residents and for future generations.

- Residents and businesses will thrive and visitors will enjoy our history and community spirit.
- We will maintain a safe and healthy environment while preserving our city's friendly, hometown atmosphere and celebrating the diversity of its people.
- We will provide extensive recreational and cultural opportunities.
- We will provide municipal services of the highest quality in a fiscally prudent and customer friendly manner.
- We will achieve our vision through a commitment to a healthy economy, a vibrant downtown, and preservation of our environment, charm, culture and vital neighborhoods.

Values

- Spirit of volunteerism and ownership throughout our community
- Respect for heritage and culture
- Preserving character and charm
- Commitment to our environmental assets
- Economic viability and sustainability for future generations
- Diversity, both economically and culturally across generations
- Recognition of value in cultivating regional relationships while preserving our identity
- Integrity, honesty and respect in all interactions
- Decision-making based on facts and citizen participation
- Governance that is accessible, accountable and efficient
- Quality neighborhoods

DIFFERENTIATORS

Unique Sense of Place

- Charming village character & scale
- Attractive place to visit
- Heritage & culture
- Central Park
- High quality of life
- Pedestrian friendly
- Vibrant Central Business District (CBD)

Diverse Character & Quality of Neighborhoods

- Lakefront estate lots
- Historic neighborhoods
- Variety of housing options
- Strong sense of community
- Neighborhood Council
- Community involvement

High Quality of Services

- Fiscally responsible
- Exceptional
  - Customer service
  - Public safety
  - Responsiveness
  - Infrastructure & services
- Professional & responsive staff

Environmental Assets

- Extensive Tree Canopy
- Recreational opportunities for all ages
- 10 acres of parks per 1000 residents
- Healthy city lakes

Life-long Learning

- Excellent public & private education for K-12 & adults
- Rollins College & Valencia Community College as an integrated community partner
- World class library, museums & cultural experiences

Full-Service City

- Own electric utility
- Own police & fire
- Hospitals & schools
- Diverse shopping options

STRATEGIC OBJECTIVES

Quality environment	Quality development & redevelopment	Quality government services & financial security	Quality facilities & infrastructure	Quality economic development

INITIATIVES

Quality environment

- Finalize Civility Code
- Work towards achieving the Green Local Government's Platinum level
- Increase average lake water clarity – currently 2.4 meters, long-term goal three meters
- Offer 20 new recreational programs to appeal to a wider and more diverse audience
- Pursue first right of refusal for the post office property
- Establish plans and initiatives to promote pedestrian safety

Quality development & redevelopment

- Continue to develop & redevelop underdeveloped, non-residential corridors
- Incentivize development and reannexation with a no-direct cost to existing tax payers approach

Quality government services & financial security

- Maintain current levels of service and current millage rate
- Fund $1 million toward establishing a goal of having 30 percent of recurring expenses in the city's reserves
- Be in the top 35 percent of pay and top 50 percent in benefits based on the approved list of benchmark jurisdictions
- Provide additional methods of communication to increase opportunities for public input

Quality facilities & infrastructure

- Increase median maintenance and construction of new sidewalks
- Complete the Fairbanks Avenue Improvement project including the construction of new sewer system and some beautification
- Complete Capital Improvement Plan (CIP) projects on time and within budget
- Place all electric distribution facilities underground as soon as possible while maintaining competitive electric rates

Quality economic development

- Finalize economic development master plan
- Establish long-term goal for appropriate balance between residential and commercial property valuations
- Finalize framework and support businesses in establishing a Business Improvement District (BID)

2008 Strategy Map

UNDERGROUNDING OF ELECTRIC LINES

City of Winter Park Strategy Map

Commission approved 6/9/08

DRIVERS

Vision

We aspire to continue to be the best place to live, work and play in Central Florida by preserving a superior quality of life for today's residents and for future generations.

- Residents and businesses will thrive and visitors will enjoy our history and community spirit.
- We will maintain a safe and healthy environment while preserving our city's friendly, hometown atmosphere and celebrating the diversity of its people.
- We will provide extensive recreational and cultural opportunities.
- We will provide municipal services of the highest quality in a fiscally prudent and customer friendly manner.
- We will achieve our vision through a commitment to a healthy economy, a vibrant downtown, and preservation of our environment, charm, culture and vital neighborhoods.

Values

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- Preserving character and charm
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- Economic viability and sustainability for future generations
- Diversity, both economically and culturally across generations
- Recognition of value in cultivating regional relationships while preserving our identity
- Integrity, honesty and respect in all interactions
- Decision-making based on facts and citizen participation
- Governance that is accessible, accountable and efficient
- Quality neighborhoods

DIFFERENTIATORS

Unique Sense of Place

- Charming village character & scale
- Attractive place to visit
- Heritage & culture
- Central Park
- High quality of life
- Pedestrian friendly
- Vibrant Central Business District (CBD)

Diverse Character & Quality of Neighborhoods

- Lakefront estate lots
- Historic neighborhoods
- Variety of housing options
- Strong sense of community
- Neighborhood Council
- Community involvement

High Quality of Services

- Fiscally responsible
- Exceptional
  - -Customer service
  - -Public safety
  - -Responsiveness
  - -Infrastructure & services
- Professional & responsive staff

Environmental Assets

- Extensive Tree Canopy
- Recreational opportunities for all ages
- 10 acres of parks per 1000 residents
- Healthy city lakes

Life-long Learning

- Excellent public & private education for K-12 & adults
- Rollins College and Valencia Community College as an integrated community partner
- World class library, museums & cultural experiences

Full-Service City

- Own Electric Utility
- Own police & fire
- Hospitals & schools
- Diverse shopping options

STRATEGIC OBJECTIVES

Provide superior quality of life	Maintain the city's appeal through controlled, compatible & sustainable redevelopment	Achieve financial security through good government practices	Deliver the highest quality facilities & infrastructure

INITIATIVES

Provide superior quality of life

- Maintain a superior response time for fire & police
- Develop a traffic & transportation improvement plan
- Identify & preserve existing historic assets
- Establish/implement a parks master plan/Central Park
- Establish & implement a reforestation plan
- Review the Cultural Plan to support the city as a destination
- Maintain & improve the quality of city lakes

Maintain the city's appeal through controlled, compatible & sustainable redevelopment

- Adopt Comprehensive Plan
- Modify codes to be consistent with the Comprehensive Plan
- Re-evaluate existing residential codes
- Implement "green plan"
- Develop a water conservation plan
- Partner in alternative water source planning
- Implement a phased approach to the annexation plan

Achieve financial security through good government practices

- Develop & evaluate a financial pro forma for projecting revenues and expenditures
- Tie staff work plan to strategic plan initiatives
- Consider Charter Review
- Develop funding criteria for outside organizations
- Plan for work force succession
- Evaluate return on investment for electric & water utilities
- Conduct quarterly budget evaluations

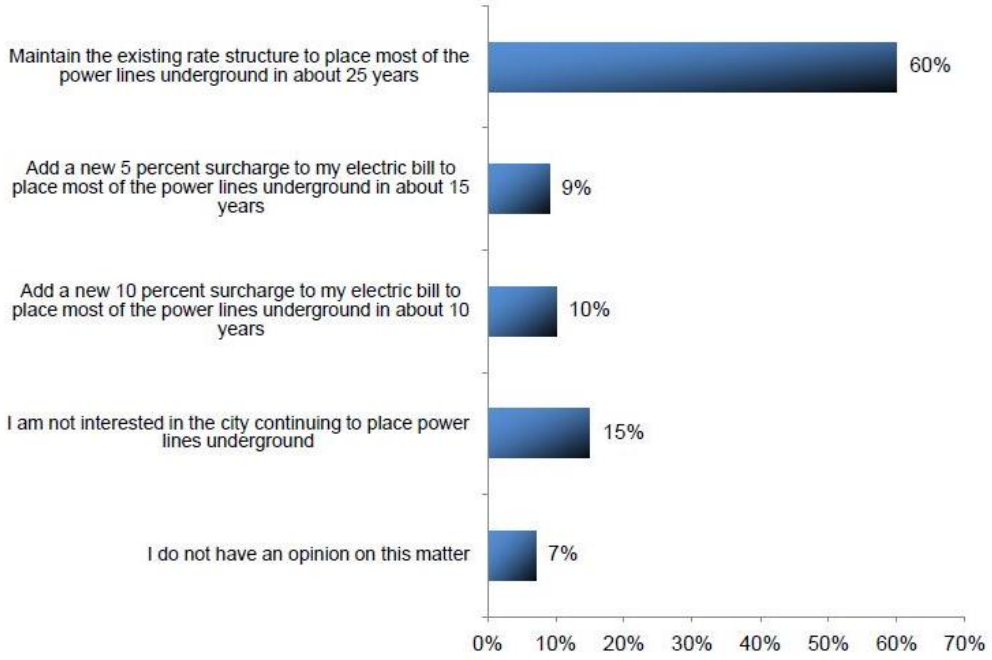
Deliver the highest quality facilities & infrastructure

- Complete long-term facilities & capital plan
- Monitor status of commuter rail
- Complete Brookshire School Review
- Build new west side community center
- Adopt & identify funding for Fairbanks Avenue streetscape beautification improvements
- Complete implementation of GIS
- Underground the electric system
- Evaluate repaving schedule
- Implement automated meter reading program
- Develop a plan for the replacement of the 4" curbs
- Improve maintenance & crew facilities for city parks

2008 Survey Results

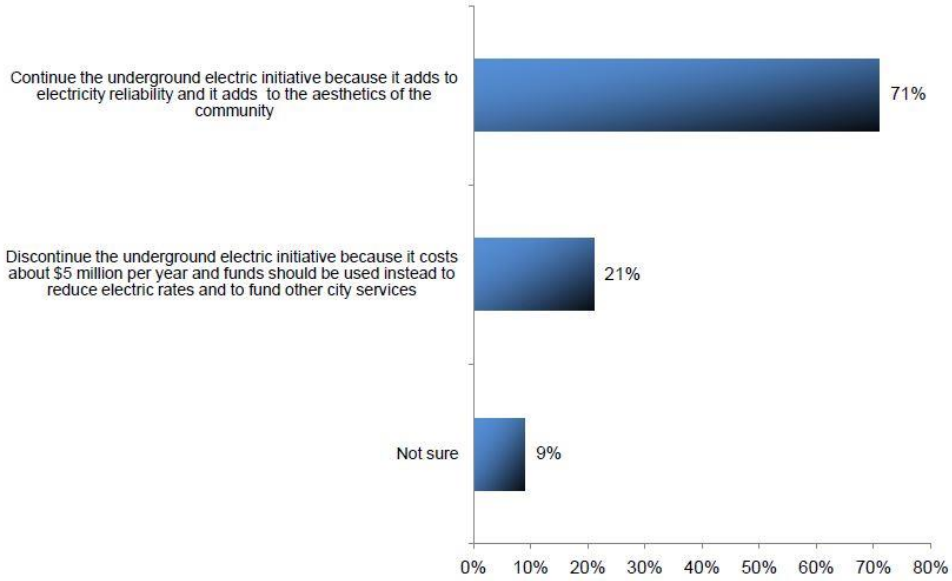
UNDERGROUNDING OF ELECTRIC LINES

Payment options for underground electricity initiative



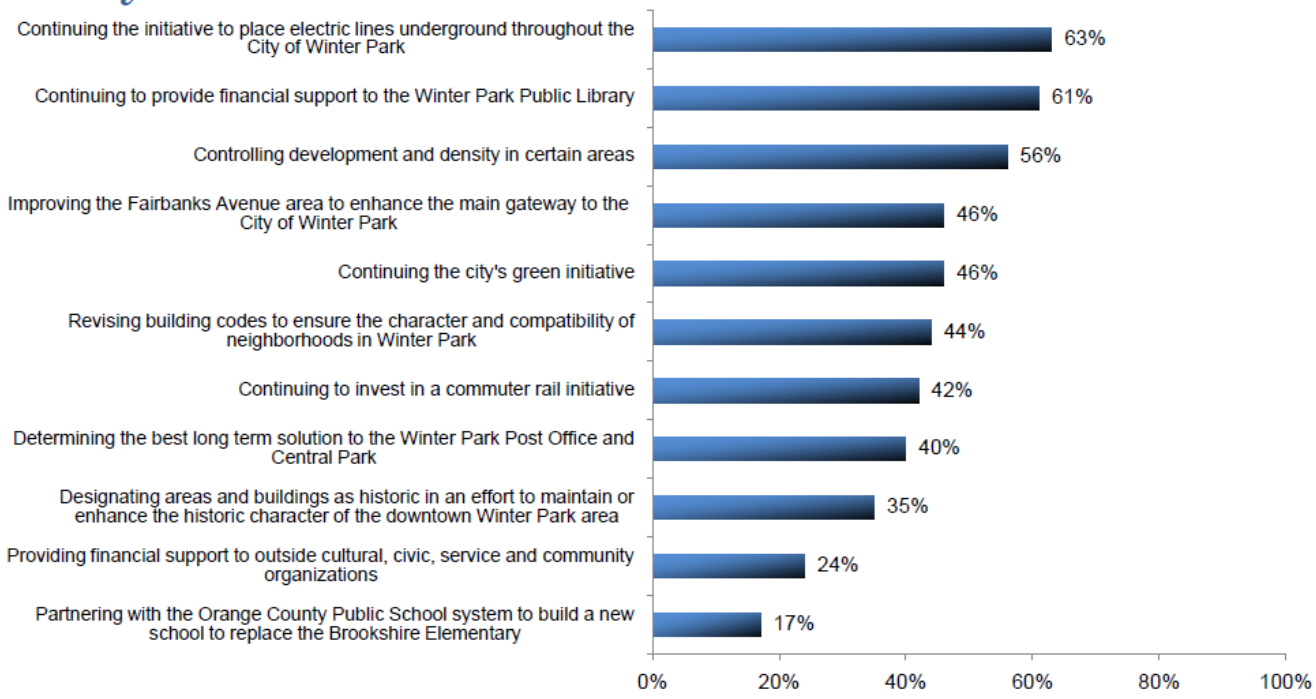
Under the existing plan, it will take over 25 years to place most of the city's power lines underground. Which of the following options best reflects your feelings toward placing the city's power lines underground? Please select only one:

Reactions to underground electricity initiative



With which of the following do you agree more:

City initiatives



The city government has many strategic initiatives it can pursue to enhance the quality of life in the City of Winter Park. Each strategic initiative has potential economic costs and benefits, and each affects the quality of life, the aesthetic appearance, and the basic character of the City of Winter Park. Please check the 5 strategic initiatives you believe the City of Winter Park should focus its resources.

CITY BUS OR CIRCULATOR SYSTEM

CITY OF WINTER PARK, FLORIDA
ESTABLISHED 1882
CITY OF CULTURE AND HERITAGE

BACKGROUND:

The 1991 Comprehensive Plan outlined the existing city operated bus service that existed from 1972 to the early 1990's. Unfortunately, the City's financial system only goes back to 1994 so the cost of the routes to the city at that time is not available.

The City did contribute to the Lynx system from 1994 through 2001 as a contribution to service. Lynx did ask that all cities within its tri-county service area contribute to the cost of service for a number of years. Today, Lynx allocates it's federal and state dollars by county contribution and Winter Park's share is included in that. The CRA also entered into the transit business by operating a trolley in the downtown area for approximately two years. Ridership was very low and the service was terminated.

The Finance Department has provided the following table that highlights the available funding resources spent since 1994 on transit services.

Year	Lynx Contribution General Fund	CRA Trolley Service
1994	82,400	
1995	96,000	
1996	97,920	
1997	55,702	
1998	50,000	
1999	50,000	
2000	50,000	
2001	55,000	
2002		95,612
2003		366

Today, Lynx operates four bus routes that directly impact the City of Winter Park. With the opening of the SunRail, Lynx has developed up to three additional routes to provide connectivity between the station and other routes along the Lynx System.

STRATEGIC QUESTIONS:

- **What is the rationale behind additional transit service?**
    - SunRail System
        - Work with large employers to operate individual shuttle service to and from the SunRail station - there are several examples in the region where large employers operate individual shuttles to parking lots to shuttle employees back and forth to work. There may be significant interest in several large employers in Winter Park to provide this type of service to the SunRail station to encourage employee ridership.
    - Connectivity of downtown to other commercial, employment or residential areas around the City
        - City operates new bus service – in an effort to supplement Lynx service, provide connectivity to the downtown area to surrounding retail and residential centers and support the SunRail system, the City may choose to operate its own bus service. Figure 5 shows the major employment centers throughout the city that would be key in analyzing a city-run bus system. These employment centers could be marketed to capitalize on SunRail ridership. Operating a city owned bus service could prove costly. Funding would need to include the startup costs of bus purchases, drivers, fuel, marketing and necessary O&M costs. Transit service has historically not covered the cost through fare box revenue so the city would be required to subsidize all necessary costs associated with the operations.
        - An additional option is to operate transit services and work with large employers who may be willing to help subsidize the cost of the service to move their employees at little or no cost to and from the SunRail station. This may not provide connectivity in the downtown, but could provide linkage to SunRail riders and employment centers.
        - City outsources transit service – This option would include the city adding routes that are outlined in the city owned system, but the entire service would be outsourced to a private operator. The city would not be responsible for the day to day operations of the system. Staff anticipates that

service would be based on a fixed rate policy with all fare box revenues going back to the provider as part of the negotiated service contract.

- Flex Bus Service – Four communities - Altamonte Springs, Maitland, Casselberry and Longwood are actively involved in creating a Flex Bus system. This is an on-call service that is being developed to primarily promote SunRail ridership in these communities and provide connectivity with their employment and commercial centers. The funding for this program is provided through the Federal Transit Administration with a committed future match from the local governments. Flex bus has two parts that are currently under development – the physical locations that the buses will pick up passengers and the technology to summon the bus, pay and arrive in a timely manner. This service is considered premium service with a potential guarantee of 12 minute pick up times. The city staff has met with representatives of Altamonte Springs and Maitland about their service. They anticipate some type of service being available at the opening of SunRail. This does not replace the Lynx service, but supplements it to allow better transit options throughout their communities. While these four cities are about to enter into an intercool agreement addressing the specifics of this system, Winter Park has been invited to participate in exploring the opportunities of participating and how this service may benefit the city. There is no obligation of any matching funds at this time, but should the city decide to pursue this service, staff anticipates a match would be necessary.

STAFF RECOMMENDATIONS:

- Without federal subsidies, operating and maintaining a bus service within the city limits is a costly endeavor.
- Looking for sponsorships or encouraging private shuttles would help encourage riders, but would not provide increased linkage between the downtown and other areas of the city.
- Staff recommends additional research into the Flex Bus option and partnering with other local communities to see if there are benefits to the city in participating in this service.

ATTACHMENTS:

- Transit Summary 1991
- Minibus Routes
- Existing Lynx Service
- Lynx Expanded Service
- Employment Centers

Transit Summary 1991

CITY BUS OR CIRCULATOR SYSTEM

Winter Park Transit System

The City of Winter Park operates a municipal public transit system as a service to the community. The system which is commonly called the Winter Park Mini-Bus System is intended to provide a transportation alternative to the citizens of the City. The service is also intended to serve as a complement to the operations of Tri-County Transit by serving neighborhoods and other local areas beyond their routes.

Winter Park has operated its municipal transit system since November 1972. Over the years, the types of service, the types of vehicles, the routes and the fares have all undergone many changes. Winter Park operated on fixed routes beginning in 1972. The City tried a dial-a-bus system of destination to destination service between 1974 and 1976. Since 1976 the operation has been on fixed routes. The vehicles have included 16 seat Mercedes buses, 24 seat mini-buses by several manufacturers, and the current 30 seat Gillig transit buses. The routes have changed directions, locations and timing. The fares were free during some periods and they have grown from 10 to 50 cents over this time period. These changes through the years have all been in an attempt to maintain and increase ridership, while minimizing the operating deficit.

Existing Conditions

In 1990, the Winter Park Transit System operates on two fixed hourly routes which meet at City Hall. The Green Line is a circular route primarily serving the eastern side of the City. The Gold Line in turn serves the western portion of the City. In this way a good geographic coverage of the City is accomplished and riders can transfer to the alternate route at City Hall. There are also several points on both routes where riders can transfer to bus service provided by Tri-County Transit. Thus, to some degree our transit system acts as a complimentary feeder system in serving areas beyond their range. The Winter Park Transit System operates eleven hourly routes on weekdays starting at 7:00 a.m. and finishing at 6:00 p.m.

The City's transit fleet consists of three buses. In 1987 the City purchased two Gillig transit coaches which are thirty passenger and thirty feet in length. These are the primary buses utilized on the two routes. They are comparable to the typical transit bus used by Tri-County, except ten feet shorter in length which allows them to serve smaller streets and neighborhood areas. The City also has a twenty-four seat mini-bus vehicle purchased in 1983 that is used as a backup bus when a primary bus is being serviced or repaired.

The City's transit system primarily serves the elderly, young children and those with low incomes. Approximately 55% of the riders are senior citizens. The transit service primarily serves riders on trips to shopping destinations, doctors offices, and social service agencies. Only to a small extent does the system serve as a means of commuting to employment.

The City's transit system attempts to serve a range of residential neighborhoods. However, the routes target multi-family developments with larger concentrations of potential riders such as the Winter Park Towers, Plymouth Apartments, Tranquil Terrace, The Meadows, Winter Park Greens and Frenchmen's Cove. The routes also target destinations such as the Winter Park Hospital, Winter Park Mall, K-Mart Center, Hollieanna Shopping Center, Aloma Shopping Center and the State Office Building. The routes also attempt to link schools with the major recreational areas.

Fares for riders are fifty cents for regular riders and twenty-five cents for senior citizens. Transfers between the Green and Gold routes are free. The fares were increased from twenty-five/ten cents in October 1987. This was coincident with the loss of federal operating assistance revenue.

Ridership for the past six years is shown in the following table. These are fare paying riders. Since transfers are free, the total ridership is approximately 10% higher in all years. This ridership is also complimented by the use of the buses during the Winter Park Arts Festival. Each year some 5,000 additional riders are transported during that three day event which are not included in the annual ridership figures.

Farebox revenue during the Arts Festival and from the balance of the year combine to off-set approximately 22% of the operating costs of the system. Virtually all public transit systems in the nation operate at a deficit. Typically, public transit operations in Florida, such as Tri-County Transit, average about 40% of farebox revenue versus operating cost. Without a significant employment ridership, Winter Park's goal should not be more than 25% of revenue versus costs. Transit ridership is highly price sensitive. Thus, the City needs to exercise care in maintaining both ridership and revenue. This is especially true in a transit system that does not rely on employment commuting as the base ridership.

TABLE 7

Winter Park Transit System Ridership

Year	Annual Riders	Percent Seniors	Percent Regular
1984	78,839	58.8%	41.2%
1985	75,424	55.6%	44.4%
1986	76,359	53.1%	46.9%
1987	76,191	51.7%	48.3%
1988	60,297	54.9%	45.1%
1989	49,290	58.3%	41.7%

Source: Motor Transport Division, Public Works Department

Coordination of the Transit System

Winter Park coordinates its transit service with several other entities. These include the U.S. Urban Mass Transportation Administration (UMTA), Florida Department of Transportation (DOT), Metropolitan Planning Organization (MPO), and the Orange-Seminole-Osceola Transportation Authority (OSOTA) which is commonly called Tri-County Transit. Tri-County Transit is the designated recipient of federal assistance by UMTA to this metropolitan area. DOT also provides some transit assistance programs. The MPO coordinates all mass transit programs.

Over the years, the OSOTA Board has been very helpful to Winter Park's transit operations. From 1982 to 1986 the OSOTA Board allowed Winter Park to receive operating assistance from UMTA. During this period there were surplus operating assistance funds available beyond their needs. Due to declining federal appropriations however, the UMTA operating assistance available no longer satisfied their needs. As a result, Winter Park as a supplementary service does not receive operating assistance. However, the OSOTA Board has also been very helpful in allowing Winter Park to receive capital grants from UMTA and DOT. The two buses purchased in 1983 and the two purchased in 1987 were made under grants that provided 80% federal, 10% DOT and 10% local funding. These capital equipment grants have been essential in continuing the City's transit operations. In the future, similar capital grant funding through OSOTA to Winter Park will be necessary.

Transit Funding

Winter Park residents financially support public transportation in a number of ways. The City's property owners support the public transportation programs of Tri-County Transit through the portion of Orange County property taxes that are committed to fund Tri-County's operations. In 1988 this amounted to $7.20 per capita from all Orange County residents.

Indirectly, Winter Park's residents also support public transportation through federal taxes that return to Tri-County Transit from the U.S. Urban Mass Transportation Administration (UMTA) for capital and operating assistance. Generally, UMTA grant programs provide 80% funding for capital purchases such as new buses, and 50% funding for operating assistance applied to the deficit between expenses and farebox revenues.

Winter Park taxpayers directly support the City's transit system as it is funded from the general operating revenues of the City. In 1989 this amounted to $3.86 per capita. Altogether, Winter Park provides approximately $11.06 of financial support per capita to public transportation.

Bicycle Facilities

Winter Park has a twenty-one mile system of bikepaths throughout the City that consist of ramped sidewalks. Given the nature of this system, these bikepaths do not function as bicycle commuting routes that can provide for an alternative mode of transportation. Instead, the City's bikepath system was constructed to link the City's schools and parks so that school children could safely bike around town on the sidewalks versus competing with vehicles in the streets. It also provides an option for adult recreational riders to seek the safety of the sidewalk when traveling on busy collector and arterial roads. The absence of any planned roadway widening projects for Winter Park and the predominance of oak trees in the parkway areas make it difficult to provide for bicycle lanes and other facilities.

Mini Bus Routes

CITY BUS OR CIRCULATOR SYSTEM

Gold Line
Monday thru Friday

First Run — Last Run
7:00 a.m. 5:00 p.m.

Each run of the Gold Line route starts hourly at City Hall.

TIME ESTIMATE

00:00	City Hall
:02	New England & Park
:04	Morse & New York
:05	Morse & Denning (State Office Bldg.)
:07	Tranquil Terrace
:08	Winter Park Mall (Ivey's)
:15	The Meadows Apartments (Bus Shelter)
:19	Winter Park Greens
:22	The Plymouth
:24	K-Mart/Winn Dixie
:26	Winter Park Mall (Back Center Entrance)
:28	The Ranch Mall
:29	Hallienna Center (Publix, Eckerds)
:30	Minnesota & Orlando
:33	Palmetto (Lombardi's Seafood)
:35	Denning & Orange
:36	Denning & Fairbanks
:37	Denning & Morse
:40	Winter Park Mall (Back Center Entrance)
:43	Canton & Capen
:44	Canton & New York
:45	New York & Carolina (U.S. Post Office)
:46	Park & Morse
:48	Park & New England
:50	City Hall

NOTE: Arrival times are estimates only due to traffic, conditions beyond our control, weather, etc. The bus may arrive several minutes earlier or later at any stop, however, every effort will be made to adhere as closely as possible to these scheduled times.

Green Line
Monday thru Friday

First Run — Last Run
7:00 a.m. 5:00 p.m.

Each run of the Green Line route starts hourly at City Hall.

TIME ESTIMATE

00:00	City Hall
:03	Library
:04	New England & Interlachen (Langford Hotel)
:05	Park & New England
:06	Park & Morse
:07	Park & Canton (St. Margaret Mary Church)
:08	Park & Stovin
:10	Palmer & Temple
:12	Temple & Chestnut
:14	Palm & Sunset
:16	Palmer & Phelps
:17	Phelps & Windsor
:21	Mizell & Benmore (Bus Shelter)
:23	Lock Lomond & St. Andrews (4 Seasons Condo's)
:27	* The Mayflower
:30	Aloma Shopping Center (Publix)
:32	Lakemont & Aloma
:34	Lochberry & Lakemont
:36	Greene & Brookshire (Brookshire Elementary)
:37	Whitehall & Berwick (Winter Park High)
:40	Winter Park Towers
:43	Glenridge Way (Glenridge Middle)
:46	Azalea Lane Recreation Center
:50	Holt & New York
:53	City Hall

* Service for this stop will begin at 9:27 a.m. and end at 3:27 p.m.

NOTE: Arrival times are estimates only due to traffic, conditions beyond our control, weather, etc. The bus may arrive several minutes earlier or later at any stop, however, every effort will be made to adhere as closely as possible to these scheduled times.

Any Questions?
Call:
623-3245 or 3324

Arrival Times at "Time Points" are approximate and may vary due to traffic conditions

Any Questions?
Call:
623-3245 or 3324

Winter Park Mini-Bus Service

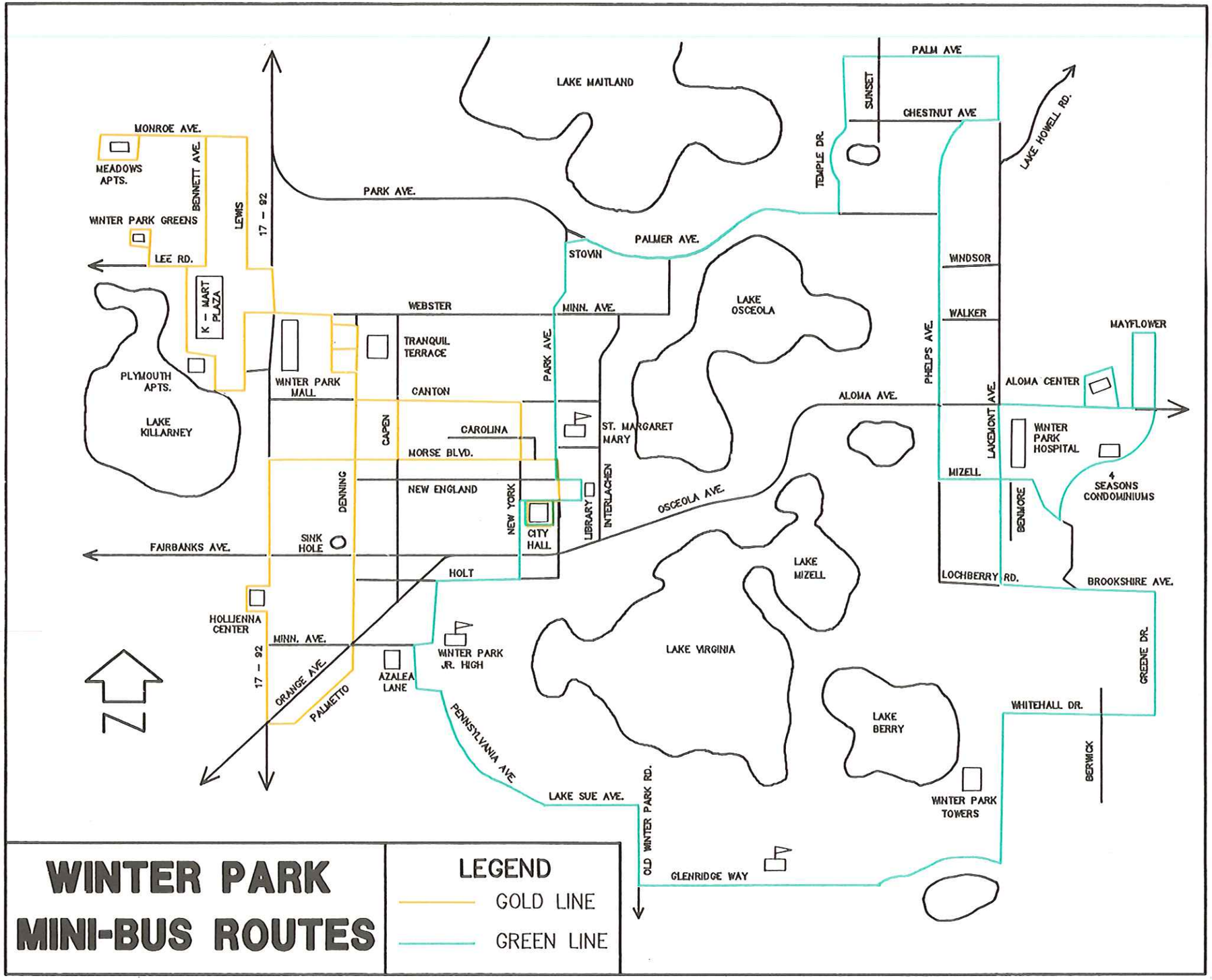
Serving:

Downtown Winter Park
Winter Park Mall
K-Mart Plaza
Hollieanna Plaza
Winter Park Hospital
Aloma Shopping Center

Effective:

September 1,1990

City of Winter Park



WINTER PARK MINI-BUS ROUTES

LEGEND

GOLD LINE

GREEN LINE

MINI-BUS ROUTE INFORMATION

Fares.....50¢

Senior Citizens
(over 65) and Handicapped...25¢

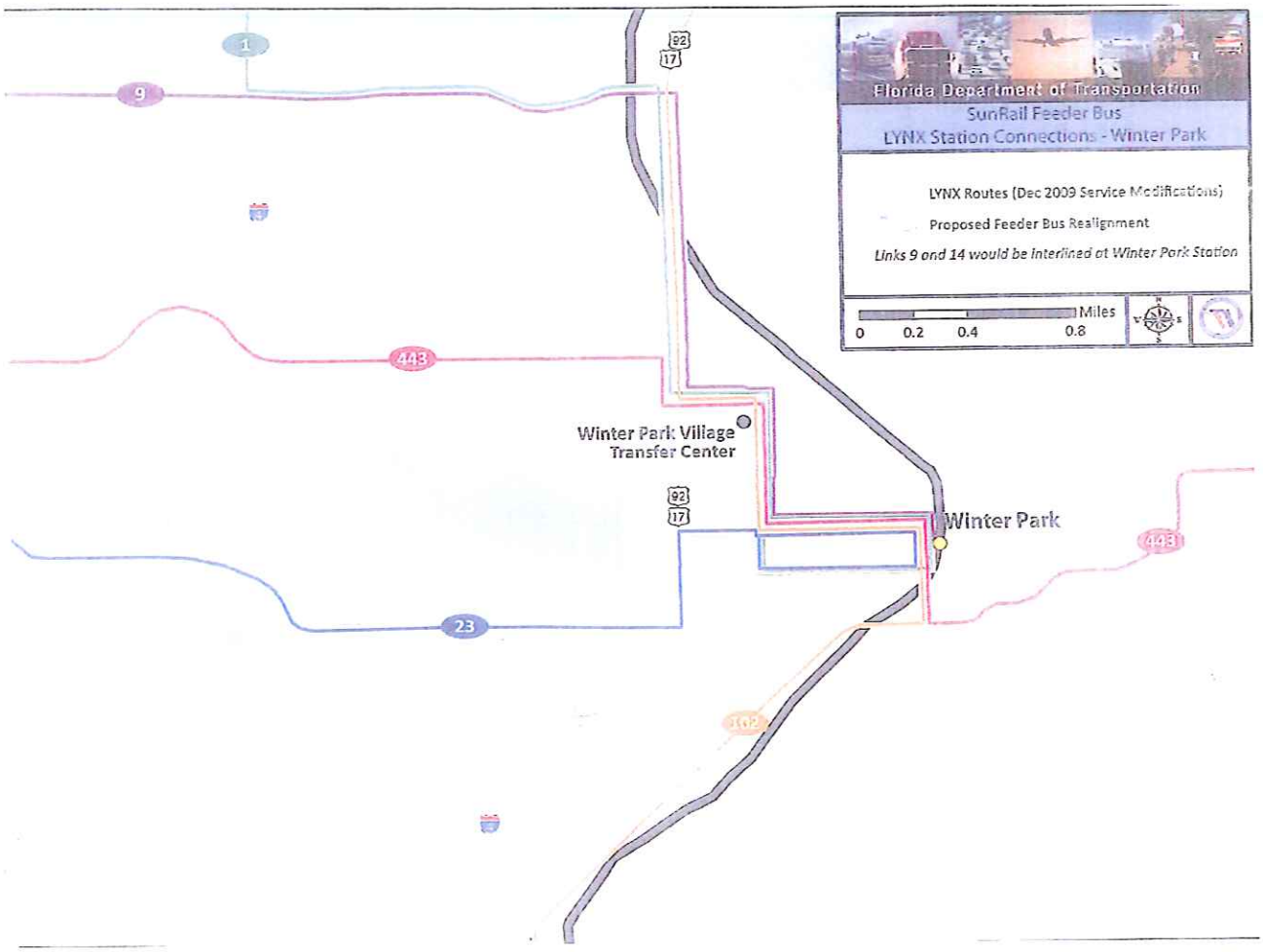
Transfers.....Free

The basic fare is 50¢ for everyone. Transfers are free. Exact change is appreciated. Senior citizens, over 65 and the handicapped are entitled to a reduced fare of 25¢. Just show the driver your Medicare card when you board. If you don't have a Medicare card or if you are a handicapped individual, there is a special I.D. card available at City Hall.

Your driver is a friend who can help answer your questions on fares and routes. Information is also available by calling 623-3245 or 3324.

Existing Lynx Service

CITY BUS OR CIRCULATOR SYSTEM


Florida Department of Transportation
SunRail Feeder Bus
LYNX Station Connections - Winter Park
LYNX Routes (Dec 2009 Service Modifications)
Proposed Feeder Bus Realignment
Links 9 and 14 would be interlined at Winter Park Station
Miles
0
0.2
0.4
0.8
1
9
92
17
443
Winter Park Village
Transfer Center
Winter Park
23

Lynx Expanded Service

CITY BUS OR CIRCULATOR SYSTEM

LYNX at Winter Park Station

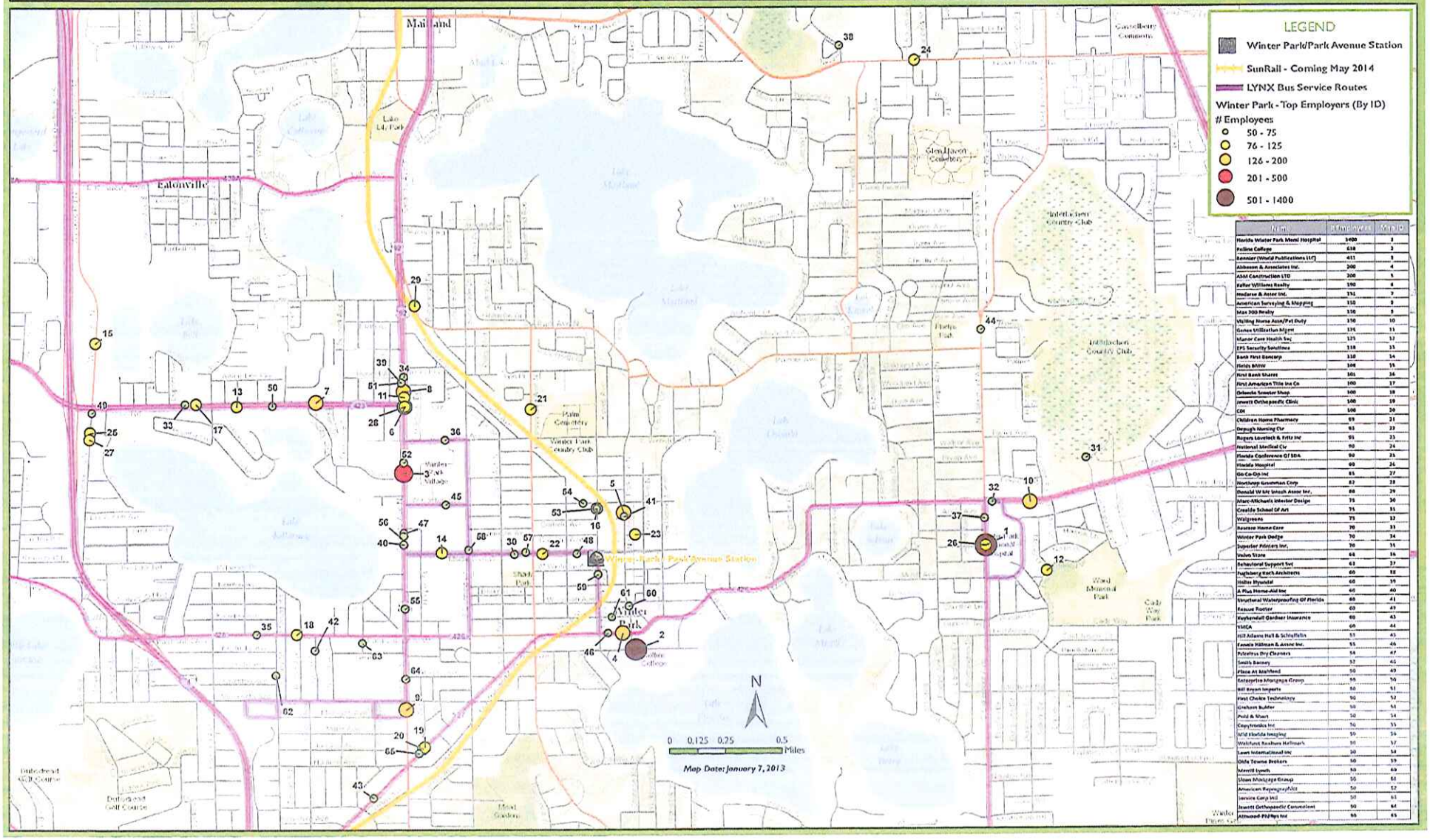
- Most bus transfers and layovers remain at Winter Park Village SuperStop
- Serves Activity Centers: downtown Winter Park, Maitland Center / Lake Destiny (1), Rollins College (443), Valencia College (1,9), Eatonville (9), Rosemont SuperStop (9,23), Florida Hospital Winter Park (443)

SunRail Station Connection	Route	Frequency	Change Proposed
Winter Park	102	15-min.	No alignment change
Winter Park	1	60-min.	Eastern end-of-line loop shifted from Winter Park Village to Winter Park (station access via New York Avenue)
Winter Park	9	60-min.	Eastern end-of-line loop shifted from Winter Park Village to Winter Park (station access via New York Avenue)
Winter Park	14	60-min.	Eastern end-of-line loop shifted from Winter Park Village to Winter Park (station access via New York Avenue)
Winter Park	23	60-min.	Eastern end-of-line loop shifted from Winter Park Village to Winter Park (station access via New York Avenue)
Winter Park	443	60-min.	No alignment change

Employment Centers

CITY BUS OR CIRCULATOR SYSTEM

Large Employers in Winter Park



Name	# Employees	Map ID
Florida Hospital Winter Park Memorial	1400	1
Rollins College	618	2
Sentinel (World Publications LLC)	411	3
Ahlstrom & Associates Inc.	200	4
Adell Construction LTD	200	5
Keller Williams Realty	190	6
Hardaway & Assoc Inc.	151	7
American Surveying & Mapping	150	8
Max 200 Realty	150	9
Visiting Nurse Assn/Fnt Duty	150	10
Gentex Utilization Mgmt	125	11
Manor Care Health Svc	125	12
DPS Security Solutions	118	13
Bank First Bancorp	110	14
Fields BMW	108	15
First Bank Shares	101	16
First American Title Ins Co	100	17
Orlando Sweeter Shop	100	18
Jewett Orthopaedic Clinic	100	19
CDI	100	20
Children Home Pharmacy	99	21
Depugh Nursing Ctr	93	22
Rogers Lovelock & Fritz Inc	91	23
National Medical Ctr	90	24
Florida Conference Of SDA	90	25
Florida Hospital	89	26
Co-Co-Op Inc	85	27
Northrop Grumman Corp	82	28
Donald W Mc Intosh Assoc Inc.	80	29
Marc-Michaels Interior Design	75	30
Crealde School Of Art	75	31
Walgreens	75	32
Response Home Care	70	33
Winter Park Dodge	70	34
Superior Printers Inc.	70	35
Valley Stone	64	36
Behavioral Support Svc	63	37
Pugliberg Rach Architects	60	38
Holler Hyundai	60	39
A Plus Home-Aid Inc	60	40
Structural Waterproofing Of Florida	60	41
Rescue Rooter	60	42
Rayhandall Gardner Insurance	60	43
YMCA	60	44
Hill Adams Hall & Schleffelin	55	45
Kennis Hillman & Assoc Inc.	55	46
Peterbrus Dry Cleaners	54	47
Smith Barney	52	48
Place At Maitland	50	49
Enterprise Mortgage Group	50	50
Bill Bryan Imports	50	51
First Choice Technology	50	52
Graham Builder	50	53
Pauld & Short	50	54
Copytronics Int	50	55
Mid Florida Imaging	50	56
Watchful Realtors Hallmark	50	57
Lawn International Inc	50	58
Olde Towne Brokers	50	59
Merrill Lynch	50	60
Sloan Mortgage Group	50	61
American Reprographics	50	62
Service Corp Intl	50	63
Jewett Orthopaedic Consultant	50	64
Attwood-Phillips Inc	50	65

DOWNTOWN PARKING

CITY OF WINTER PARK, FLORIDA
ESTABLISHED 1882
CITY OF CULTURE AND HERITAGE

BACKGROUND:

Parking in downtown Winter Park has long been recognized as a recurring issue. The first documented parking study was done for downtown in 1986, with additional studies following in 1999, 2003, 2008 and 2013.

- "This analysis has shown a current parking deficiency in Winter Park of more than 200 spaces." 1986 Parking Study
- "Based on existing land uses and occupancy rates…currently, Park Avenue South has the largest deficit in short term parking (291 spaces." – 2003 Parking Study
- "..the facilities serving the Park Avenue Corridor may experience a deficit of 237 weekday daytime spaces and a deficit of 280 weekend daytime parking spaces" – 2013 Parking Study

STRATEGIC QUESTIONS:

1. **How does the City address parking deficit along the Park Avenue Corridor?**
    a. Short Term – create permanent parking spaces
        i. Expansion of city hall lot taking out PW building (add 75 spaces)
        ii. Additional 15 spaces by Post Office/W. Meadow
        iii. Blake Street property – furthest site from downtown. No direct access due to FDOT/rail corridor closing. Access available along Comstock. – 50 spaces
    b. Short Term – create temporary parking spaces for high-peak time periods – art festival, holiday shopping, Valentine's Day concert
        i. Pilot parking spaces – Morse Blvd. 40 spaces

c. Mid-Term – Market parking spaces including locations, access, ease
    i. Develop web-based parking apps
    ii. Map showing parking lots
    iii. Holiday map showing temporary parking
    iv. Add circular P under existing way finding panels

2. **How does Winter Park become more bicycle-friendly in the downtown corridor?**
    a. Short and Mid-Term – Create more bicycle parking
        i. Create a centralized permanent bicycle lot with bike hoops
    b. Preferred location – west side of railroad tracks near SunRail station
    c. Create bicycle parking in unusable parking areas
    d. More bike valet
3. **Long-Term – Explore additional parking with private providers using private lots or reserved spaces in the downtown?**
    a. Open agreements with existing partners to use designated spots for weekend/off peak parking. May need additional funding for operations/maintenance of garage.
    b. Acquire the rest of the City Hall block and expand parking.

STAFF RECOMMENDATIONS:

Staff has looked at short and mid-term parking solutions that are cost effective and implementable with limited capital investment. Long-term solutions such as additional parking structures or relocation of parking lots involve significant capital costs and land allocations or purchase.

The bike valet effort tis underway. Continued implementation is planned for the Fall Art Festival, the Harvest Festival, the Christmas Parade and several spring events. Based on staffing constraints, this service is limited. Funding for two paid attendants would expand the service into weekends.

ATTACHMENTS:

- City Hall Parking Expansion Plan
- Post Office Parking
- Blake Street Parking
- Morse Blvd. & New York Ave. restriping
- Bicycle Parking Plans

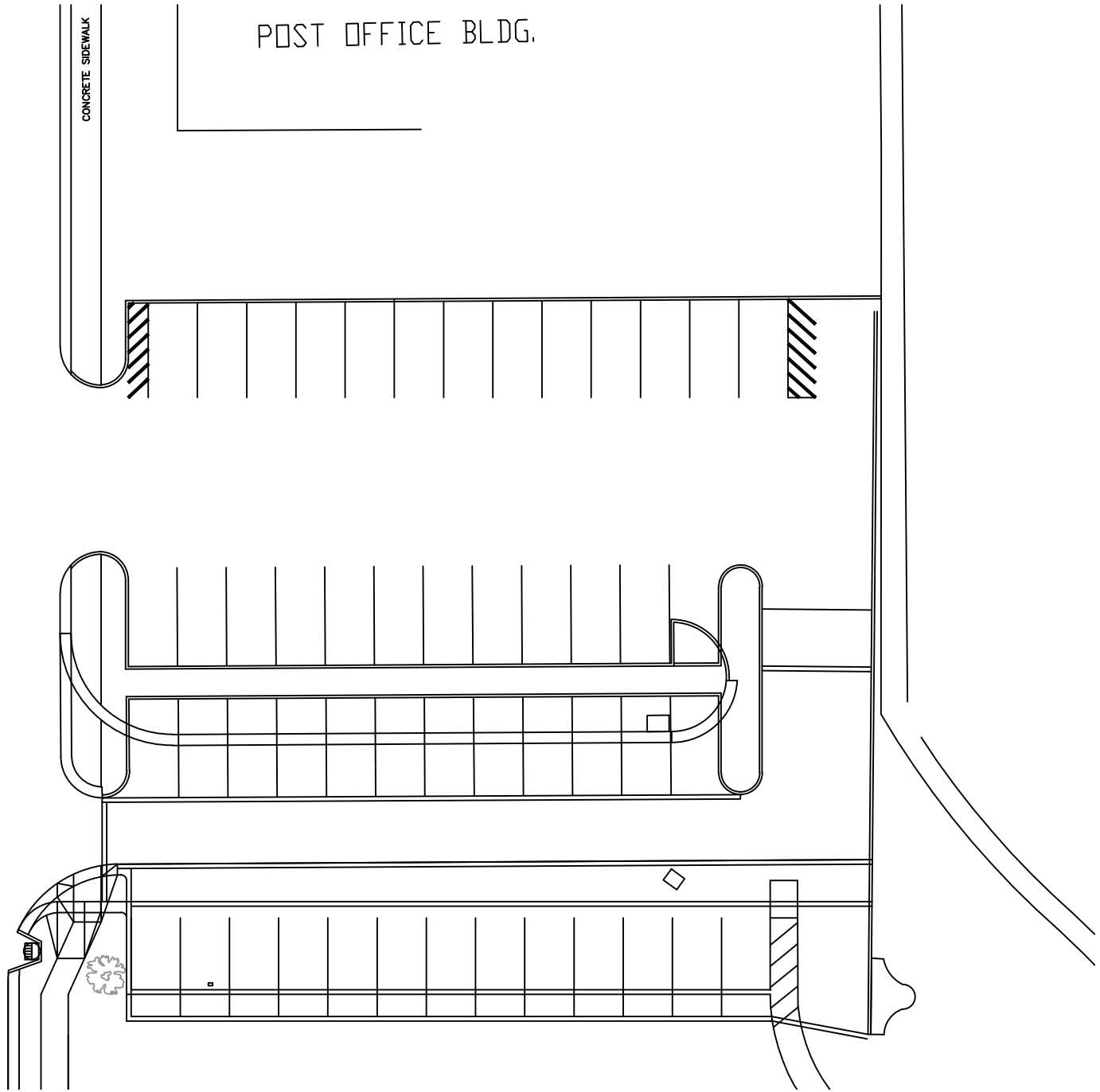
City Hall Parking Expansion Plan

DOWNTOWN PARKING

12.00'
12.00'
5.00'
20.00'
(TYP.)
9.00'
(TYP.)
18.00'
(TYP.)
20.00'
(TYP.)
DUMPSTERS TO BE
RELOCATED
ELEC. CAR
DENOTES TREE
TO BE REMOVED (TYP.)
DUMPSTER'S NEW LOCATIONS
140' X 110' area of New Asphalt
YORK AVE.

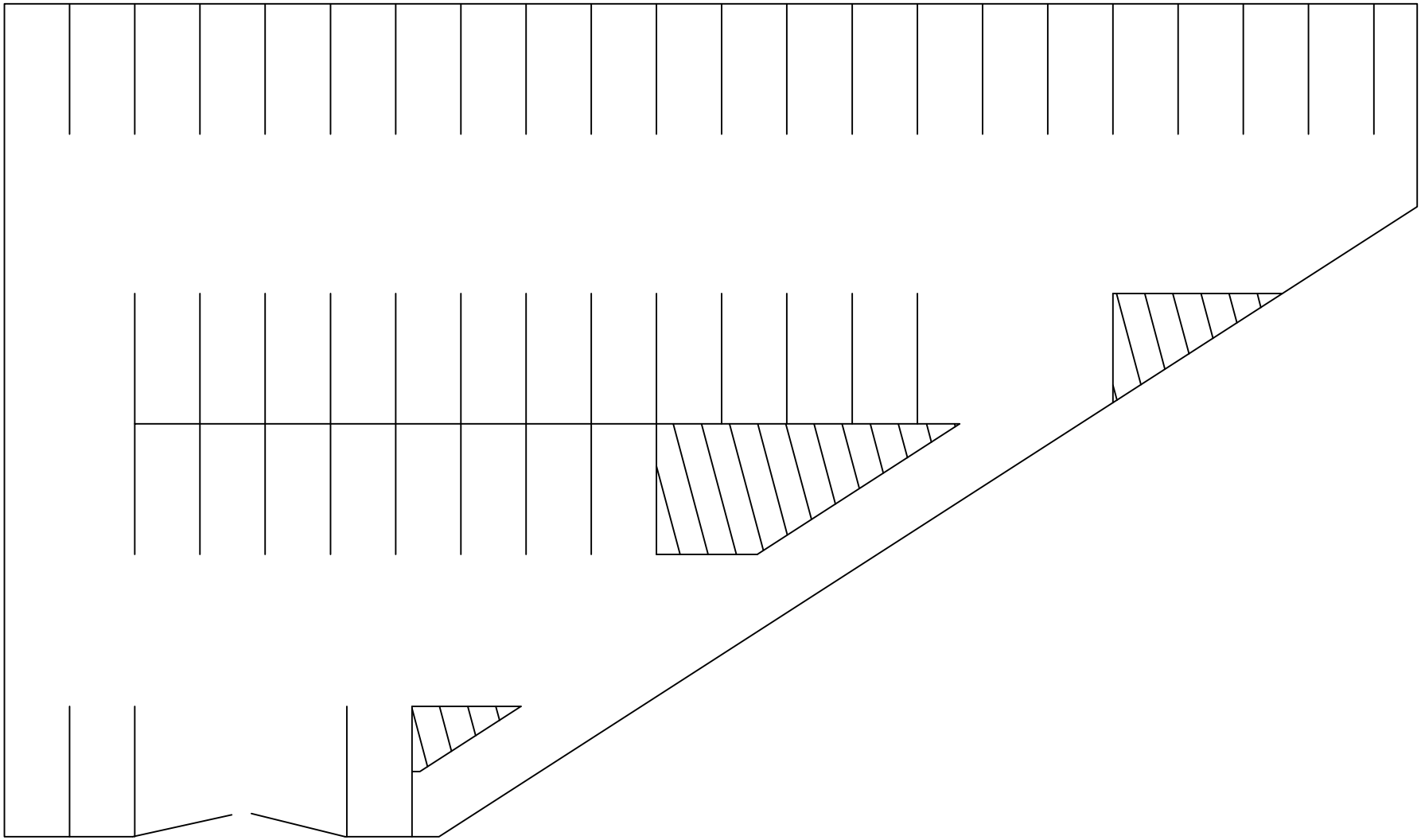
Post Office
Parking

DOWNTOWN
PARKING


POST OFFICE BLDG.
CONCRETE SIDEWALK

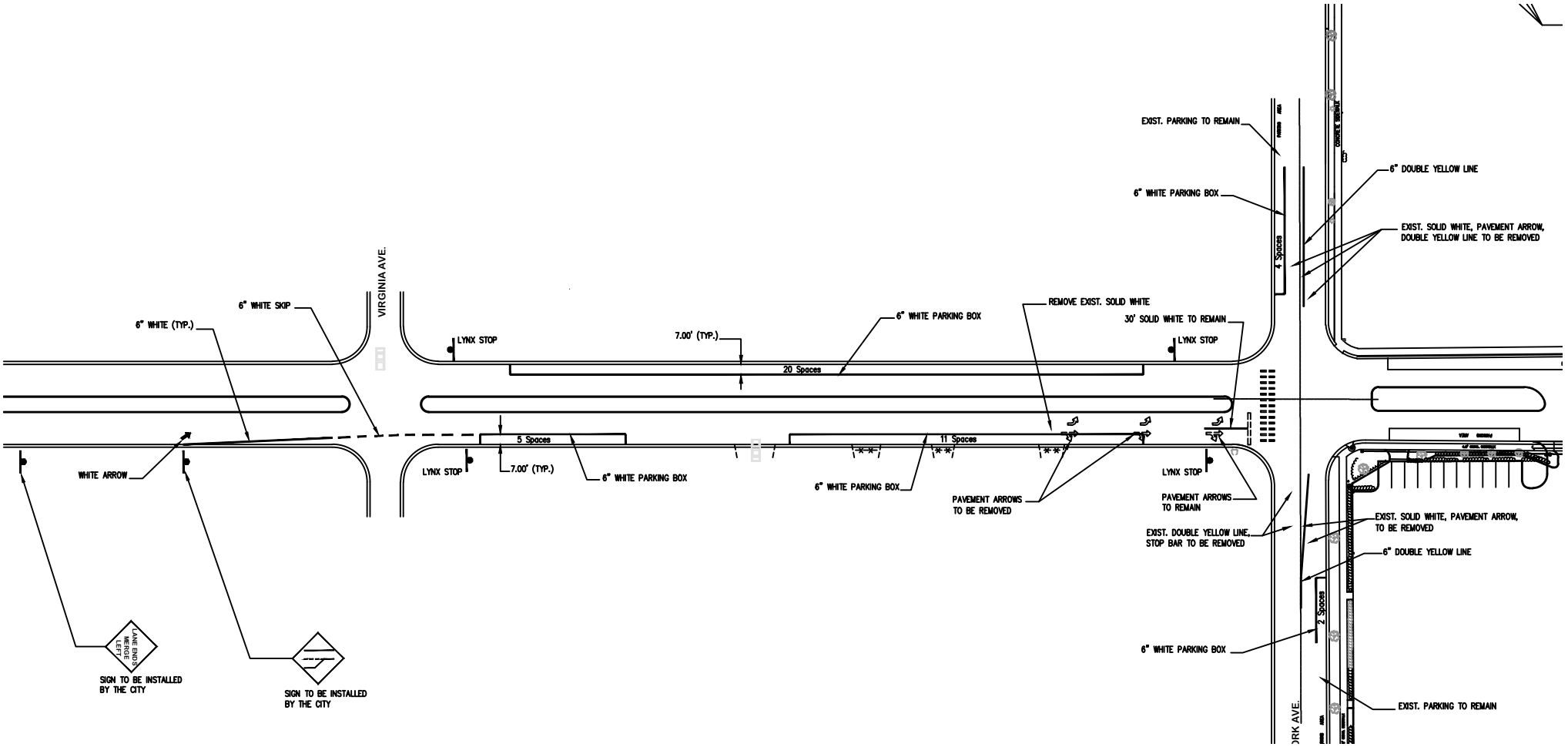
Blake Street Parking

DOWNTOWN PARKING



Morse Blvd. & New York Ave. restriping

DOWNTOWN PARKING


VIRGINIA AVE.
6" WHITE SKIP
6" WHITE (TYP.)
LYNX STOP
7.00' (TYP.)
6" WHITE PARKING BOX
20 Spaces
REMOVE EXIST. SOLID WHITE
30' SOLID WHITE TO REMAIN
LYNX STOP
EXIST. PARKING TO REMAIN
6" WHITE PARKING BOX
4 Spaces
6" DOUBLE YELLOW LINE
EXIST. SOLID WHITE, PAVEMENT ARROW, DOUBLE YELLOW LINE TO BE REMOVED
WHITE ARROW
5 Spaces
LYNX STOP
7.00' (TYP.)
6" WHITE PARKING BOX
11 Spaces
6" WHITE PARKING BOX
PAVEMENT ARROWS TO BE REMOVED
LYNX STOP
PAVEMENT ARROWS TO REMAIN
EXIST. DOUBLE YELLOW LINE, STOP BAR TO BE REMOVED
EXIST. SOLID WHITE, PAVEMENT ARROW, TO BE REMOVED
6" DOUBLE YELLOW LINE
2 Spaces
6" WHITE PARKING BOX
EXIST. PARKING TO REMAIN
LANE ENDS MERGE LEFT
SIGN TO BE INSTALLED BY THE CITY
SIGN TO BE INSTALLED BY THE CITY

Bicycle Parking Plans

DOWNTOWN PARKING


BICYCLE
PARKING
ONLY
Through the Looking Glass
Penzeys Spices


BREAKAWAY BICYCLES


LAKE
MAITLAND
TO
EATONVILLE
AND MAITLAND
RAWLINGS
KMART
PLAZA
WINTER
PARK
VILLAGE
WINTER PARK
COUNTRY CLUB
LAKE
KILLARNEY
CIVIC
CENTER
VALENCIA
COLLEGE
COMMUNITY
CENTER
SUNRAIL
STATION
DOWNTOWN
WINTER
PARK
MLK
PARK
ROLLINS
COLLEGE
LAKE
VIRGINIA
ROLLINS
LANE
PARK
MEADE
GARDENS
TO
ORLANDO


CITY OF WINTER PARK
Pedestrian & Bicycle
Advisory Board
more information, please visit, | citywinterpark.| or call 407-599-3411 or 407-599-3217

GATEWAY CORRIDORS

CITY OF WINTER PARK, FLORIDA
ESTABLISHED 1882
CITY OF CULTURE AND HERITAGE

BACKGROUND:

Throughout the past 15 years, there have been a number of studies done throughout the city identifying corridors and studying potential *physical* improvements that would make the corridor more appealing or more *economically* attractive. This is a list of some of those studies:

Physical:

- Orlando Avenue PD&E Study
- Winter Park Gateway Design Master Plan
- Vision for Various Corridors drafted for the Transportation Element
- Fairbanks Avenue Corridor Study

Economic:

From the economic side, the CRA has developed a list of economic incentives that have been useful in creating some economic stimulus around the CRA for small to medium business development. These programs include:

- Business façade
- QTI
- TIE Program
- Microloan program
- Brownfields

STRATEGIC QUESTIONS:

1. **Define the corridors.**

2. **Are you looking for either physical improvements and/or Economic improvements?**

3. **Prioritize the corridors for evaluation.**

4. **Do you want to showcase gateways along every corridor coming into the City? If yes, is the city willing to support the construction and upkeep of architectural features to do that?**

5. **Do we want to incentivize certain corridors to encourage a specific type of development?** For example:
    - Fairbanks Avenue – medical office between regional hospital facilities
    - Orlando Avenue – retail, entertainment, dining district that draws passerby traffic between employment designations.

STAFF RECOMMENDATIONS:

- Changing a corridor or implementing physical improvements takes time and money.
- Staff needs to understand which corridor comes first in priority based on redevelopment, level of service, economic viability or immediate physical improvements.
- Corridor redevelopment is a long-term effort.
- There needs to be a consensus as to what aspects of corridor development the commission would like to see.

ATTACHMENTS:

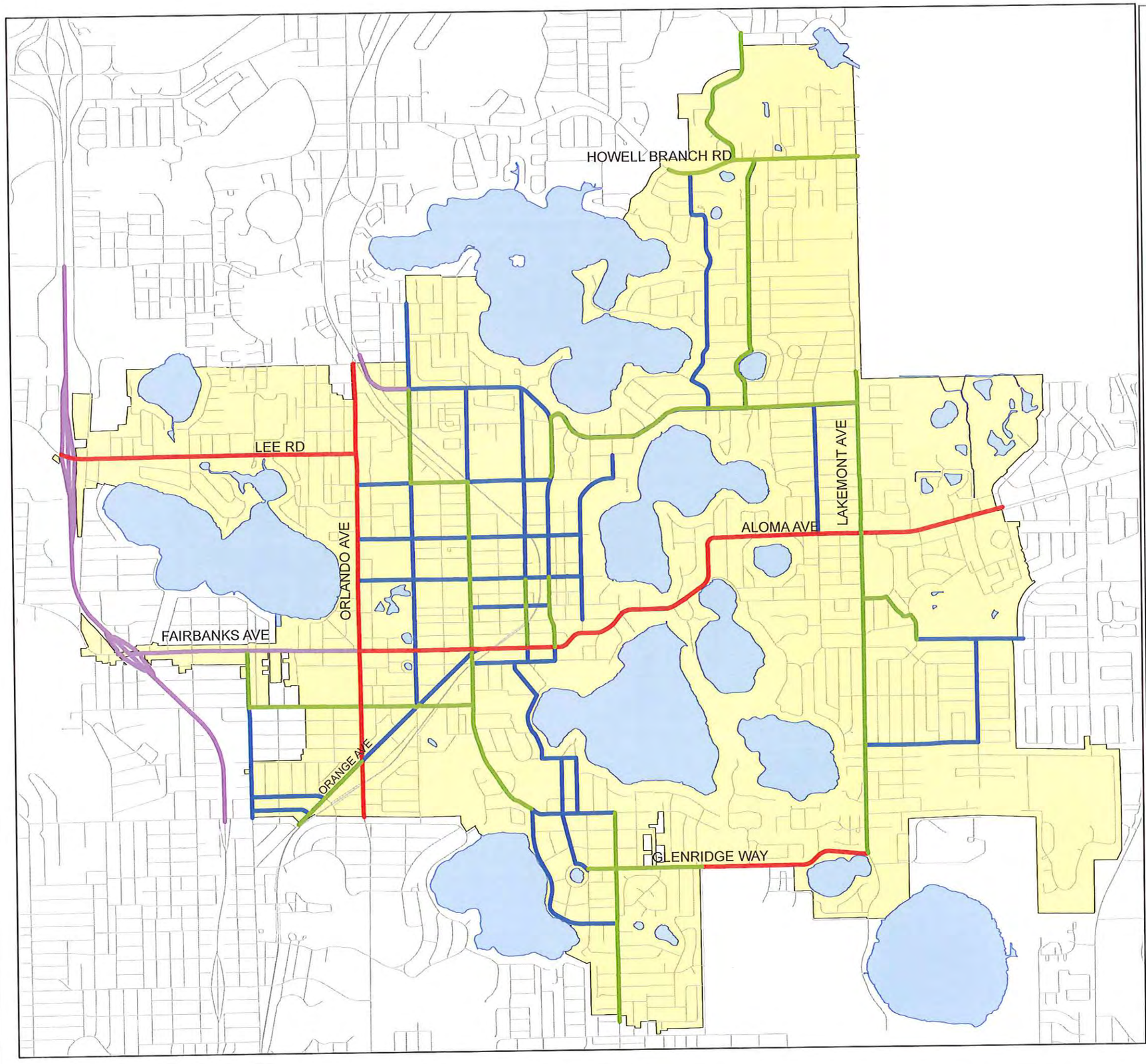
- Corridor Map
- Winter Park Gateway Design Master Plan
- US Hwy. 17-92 PD&E Study
- Orlando Avenue Transportation Urban Design Plan
- Vision Studies

Corridor Map

GATEWAY
CORRIDORS

Transportation Element

Figure 11
Vehicular Peak Direction LOS, 2023
Planning Department, 2008

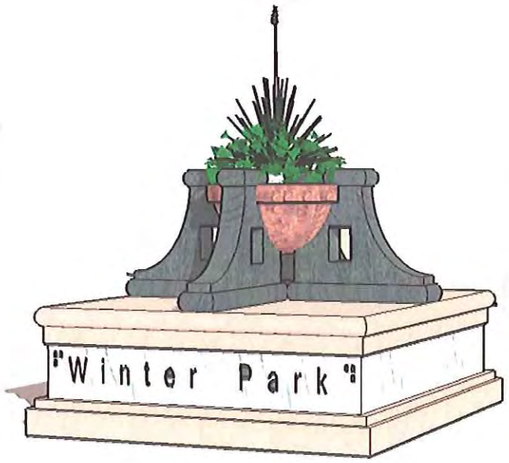


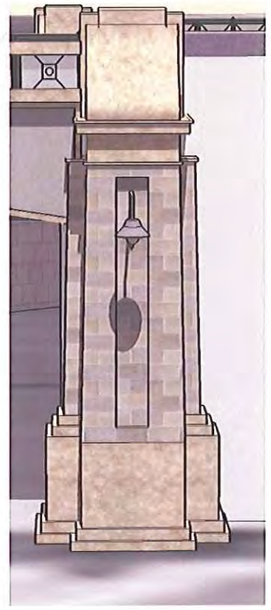
Operating Level of Service

- D
- F
- E
- B / C
- WP_Hydro
- WPBoundaryPoly

WP Gateway Design Master Plan

GATEWAY CORRIDORS





Winter Park Gateway Design Master Plan

90% Completion Plan

July 17, 2007

Table of Contents

I. Introduction

The goal of the Gateway Program is to enhance Winter Park's "front doors" by not only constructing improvements in the areas seen by the most people, but doing so in a way that provides a unique identity and sense of place for each location and the edges of the City. The proposed method of achieving this is a public/private partnership both for capital funding and maintenance.

City leaders have recognized the importance of welcoming visitors, workers, and residents to the Central Florida's "City of Culture and Art". Each gateway celebrates Winter Park's civic history while providing the framework to orient visitors, link visitors to downtown and neighborhoods, and establish a strong sense of uniqueness and urban vitality.

The overall design concept is to provide a series of architectural and landscape elements that become focal points entryways and special places to Winter Park.

The Gateway Program encourages public/private partnerships to implement the entryway improvements. The result is a unified effort on design, funding, and maintenance that celebrates Winter Park's highly developed civic history.

Through the creation of the plan, the City hopes to inspire some of Winter Park's corporate and individual sponsors to adopt a gateway location and provide funding for the gateway element. Toward this end, significant public commitment has already been made toward the City's primary gateway at Interstate 4 and Fairbanks Avenue. The City has negotiated the rights to property terminating the east bound exit ramp creating an adequate space for a significant element. In addition, the state has made available significant funding for both hardscape and landscape improvements at this critical point at the time that the Interstate is widened in the next decade.

Arriving at the Winter Park Train Station
Circa 1940

Orwin Manor Gateway, an unofficial gateway to Winter Park from Orlando on Orange Avenue, 1924

II. History

For the first 60 to 70 years of the town's existence, the primary gateway to the City of Winter Park was Central Park and the Winter Park train station. Only in the 1950's and 1960's did access to the town by automobile replace the train as the primary method of travel to the City. Orlando Avenue and Orange Avenue provided road access to Orlando. Then with the completion of Interstate 4 in 1965, Fairbanks Avenue and Lee Road became the most as perhaps the most important portals to the City. More recently, with the arrival of Disney and the development of Orlando International Airport, Aloma Avenue from Semoran Boulevard has also become a major point of entrance.

While most people now enter the city though these points (Fairbanks Avenue, Aloma Avenue and Lee Road), well-articulated definition of these entrance points through landscape or architectural element is nonexistent. Neither is the real character of the city realized along these entrance roads due to the marginal land uses, building types and the lack of the famous Winter Park tree canopy.

III. Gateway Sites

• 13 Major Gateway Locations

1. Fairbanks at I-4
2. Orange Avenue at Orlando City Limits
3. Orlando Avenue at Orlando City Limits
4. Winter Park Road at Orlando City Limits
5. General Rees at Glenridge Way
6. Lakemont at Baldwin Park Entrance
7. Glenridge Way at Baldwin Park
8. Aloma Avenue at City Limits/Balfour Drive
9. Lakemont at Seminole County Line
10. Howell Branch at Seminole County Line
11. Howell Branch at Maitland City Limits
12. Orlando Avenue at Maitland City Limits
13. Lee Road at I-4

• 4 Internal Gateway Locations

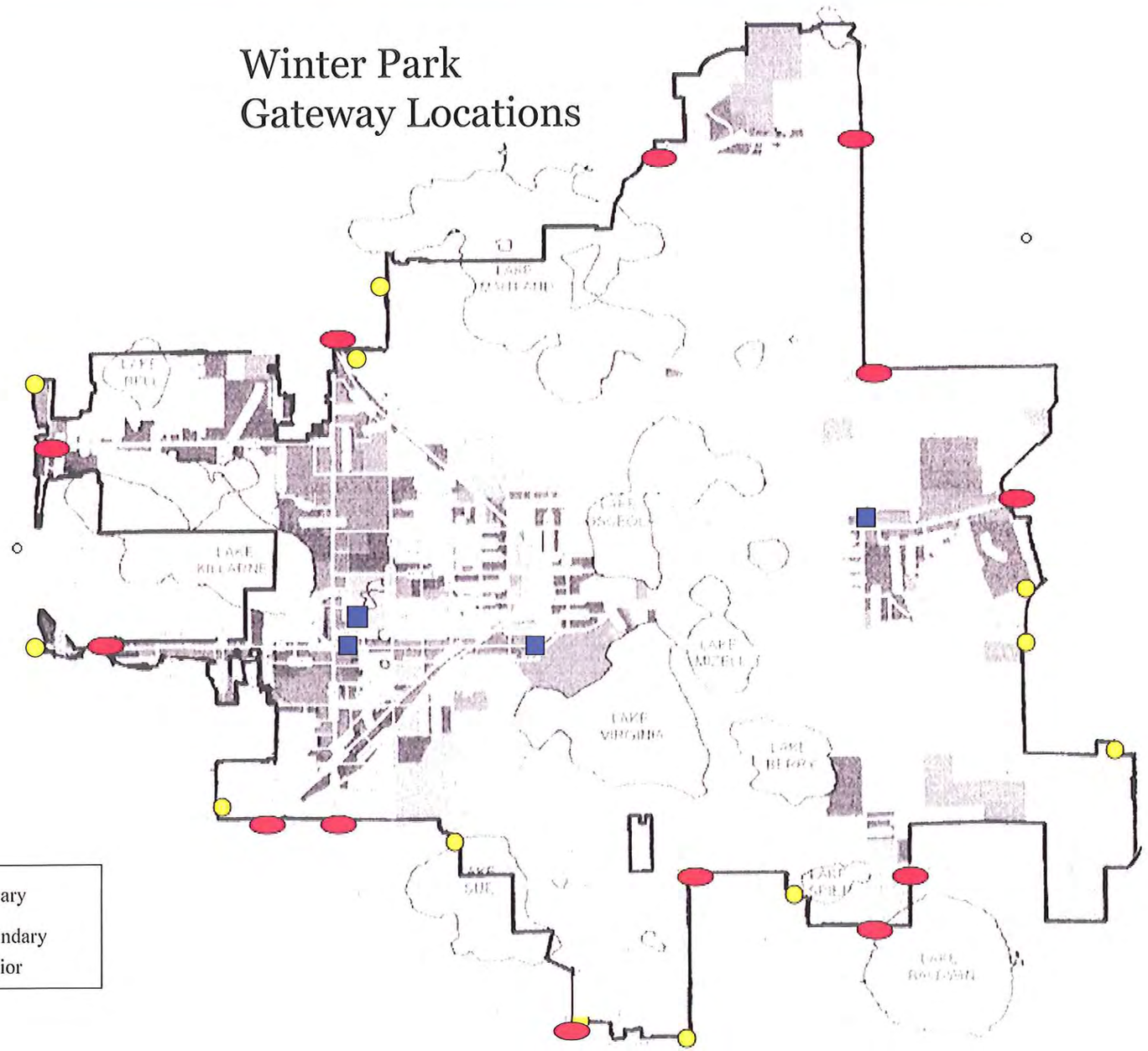
1. Fairbanks and Orlando Avenues
2. Orlando Avenue and Morse Boulevard
3. Park and Fairbanks Avenues
4. Lakemont and Aloma Avenues

• 20 Secondary and Tertiary Gateway Locations

1. Ranger Boulevard at Winter Park Pines or Ranger Boulevard at Summerland Ave.
2. Bike Trail at Banchory Bridge.
3. Cady Way at Winter Park Pines
4. Bike Trail at Ward Park & City Limits
5. General Rees at Orlando City Limits
6. Parkland Drive at General Rees
7. Sycamore Drive at General Rees
8. Northwood Blvd., north of Corrine
9. East Ends Ave. at Orlando City Limits
10. Hammerlin Ave. at Orlando City Limits
11. St. George Ave. at Oaks Street
12. Glenridge Way at Upper Park Road
13. Mead Garden Trail at Nottingham
14. Clay Street at Par Street
15. Wymore Road at City Limits
16. Monroe Avenue at City Limits
17. Park Avenue at City Limits
18. Sunnyside at Juanita Rael
19. Sunnyside at Alpine
20. Sunnyside at Dixie Parkway

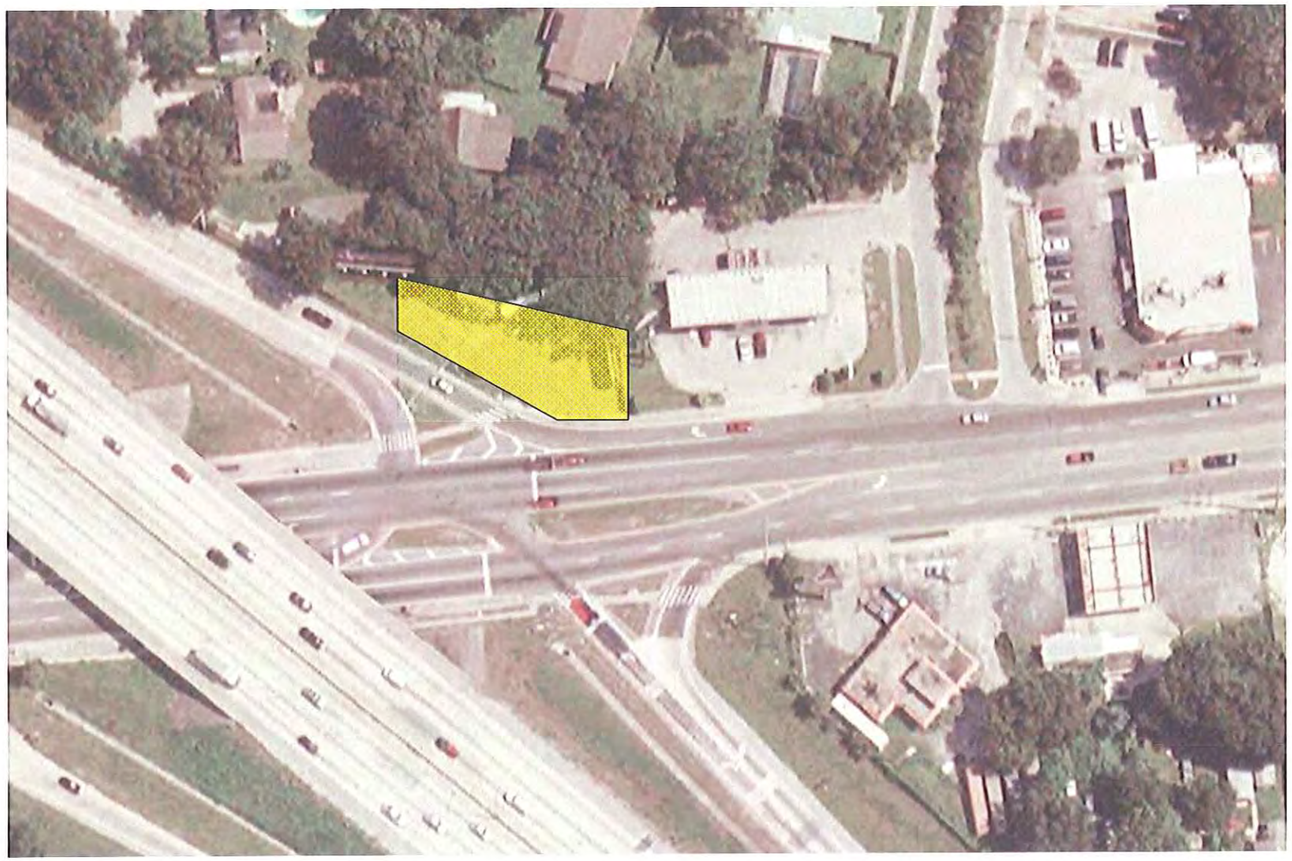
III. Gateway Sites

Winter Park Gateway Locations



III. Gateway Sites

Primary Site 1 – Fairbanks & I-4



Rights to property secured by City.

III. Gateway Sites

Primary Site 2 – Orange Avenue at Orlando City Limits

Proposed location –west side

Proposed location –east side

Existing sign – to be removed

Ownership – City property & Right-of-way

III. Gateway Sites

Primary Site 3 – Orlando Avenue at Orlando City Limits

Recommended Gateway Site

Site Alternatives

Existing Welcome Sign

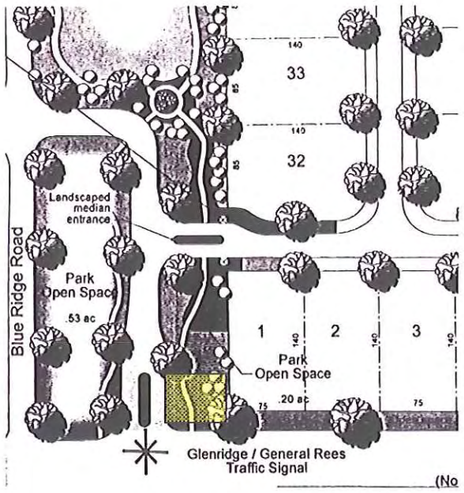
Recommended Gateway Site:
City-owned property

III. Gateway Sites

Primary Site 4 – Winter Park Road & Orlando City Limits

City Right-of-Way

Primary Site 5 – General Reese & Glenridge Way



Ownership: City Property

III. Gateway Sites

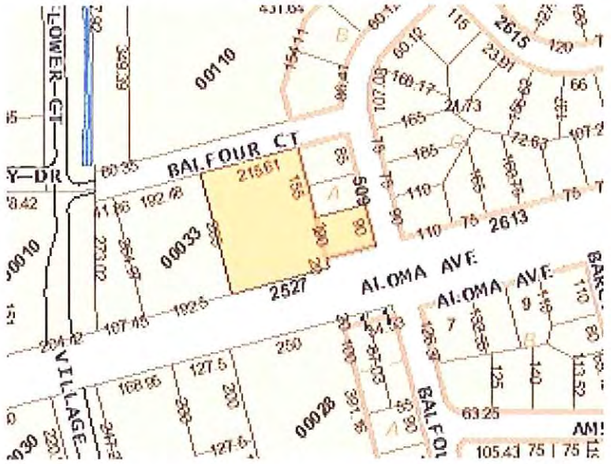
Primary Site 6 – Lakemont at Baldwin Park

Ownership: City-Owned Property

Primary Site 7 – Glenridge Way at Baldwin Park

Ownership: City-Owned Property

Primary Site 8 – Aloma Avenue at City Limits/Balfour Drive



Ownership: Private property, Owner is CVS Pharmacy. This vacant parcel is part of the larger, already developed parcel. It appears to be a remnant that can easily support a gateway element. One potential challenge is dealing with CVS when they need no other city approvals.

III. Gateway Sites

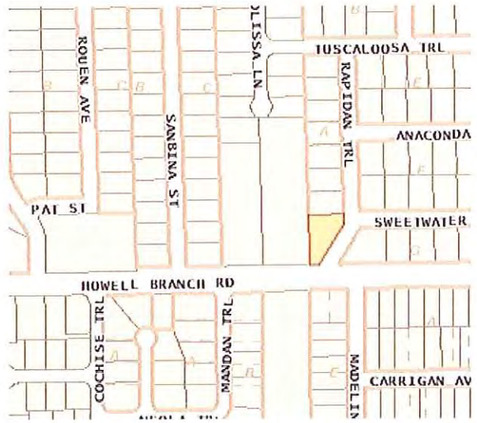
Primary Site 9 – Lakemont Avenue at Seminole County Line

Ownership: City Right-of-Way

III. Gateway Sites

Primary Site 10 – Howell Branch Road at Seminole County Line

At the exact city limit location there is no space for a gateway.



Proposed location at Howell Branch & Rapidan Trail

The City's welcome sign is located just west of Sanbina St.

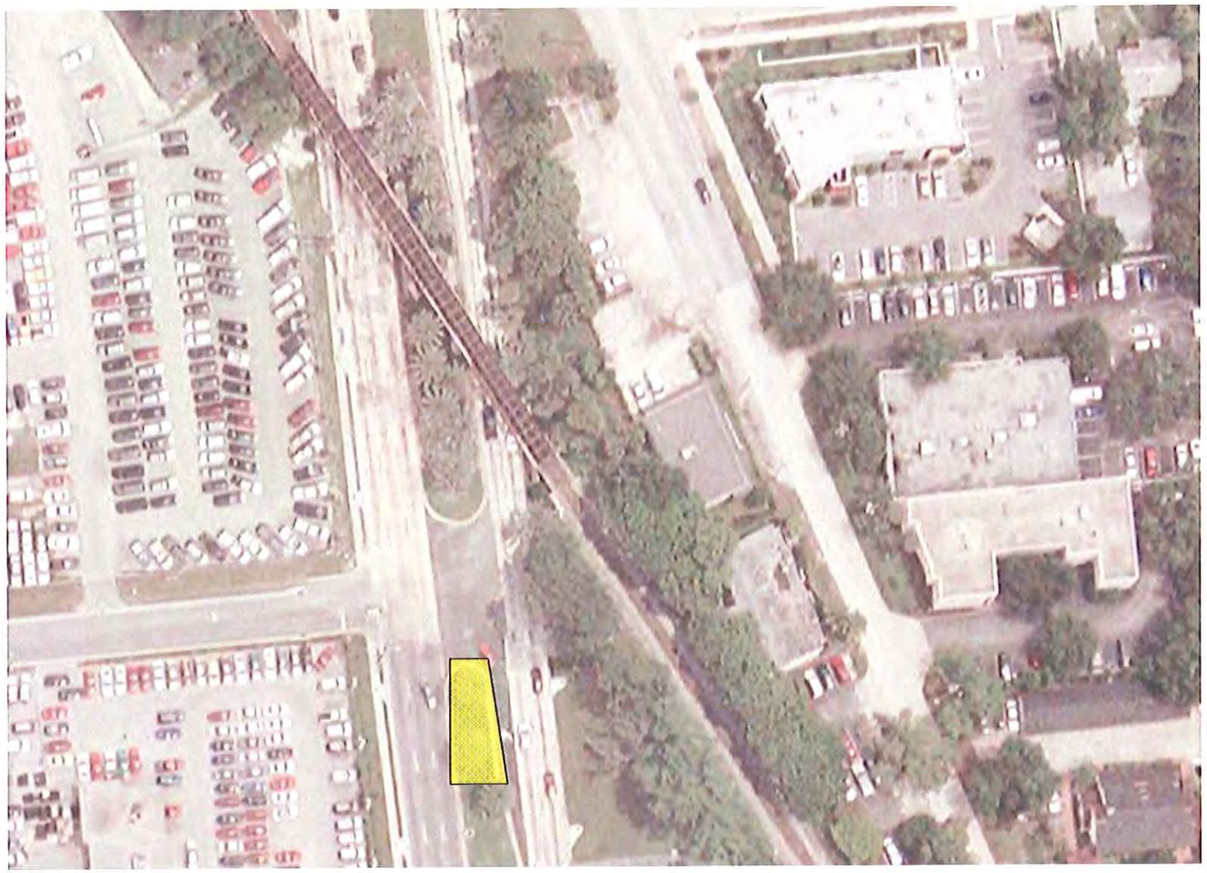
Ownership: Private, Glen Rowe & Michael Harron Jr. 2800 Rapidan Trail

II. Gateway Sites

Primary Site 11– Howell Branch at Maitland City Limits

Ownership: City Right-of-Way in front of the home of Steven Holliday at 2605 Venetian Way.

Primary Site 12 – Orlando Avenue at Maitland City Limits



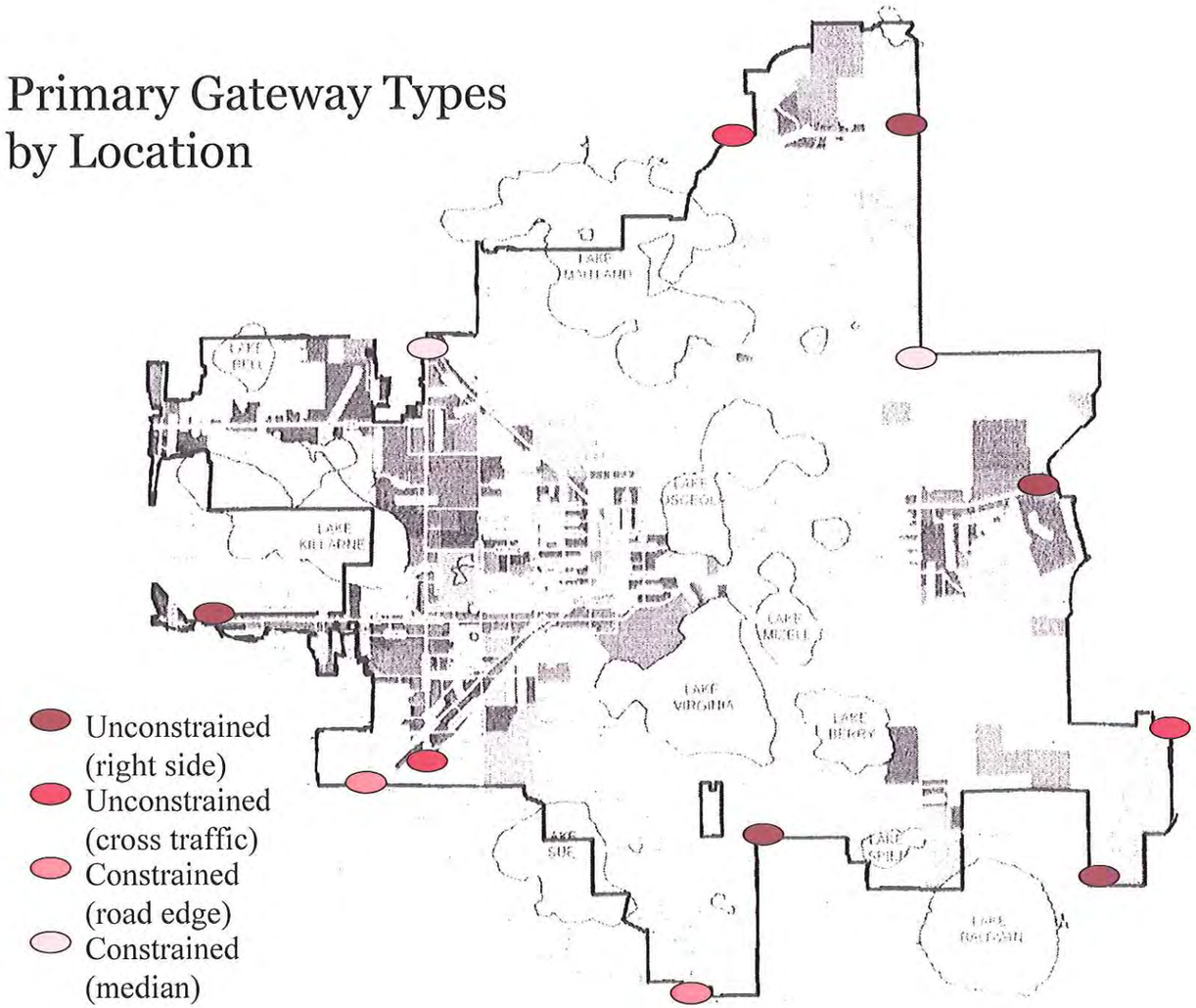
Ownership: FDOT Right-of-Way

Primary Site 13 – Interstate 4 at Lee Road

Location: Pending review of FDOT plans for new interchange bridge.

III. Gateway Sites

Primary Gateway Types by Location



Gateway Types

Primary Gateways

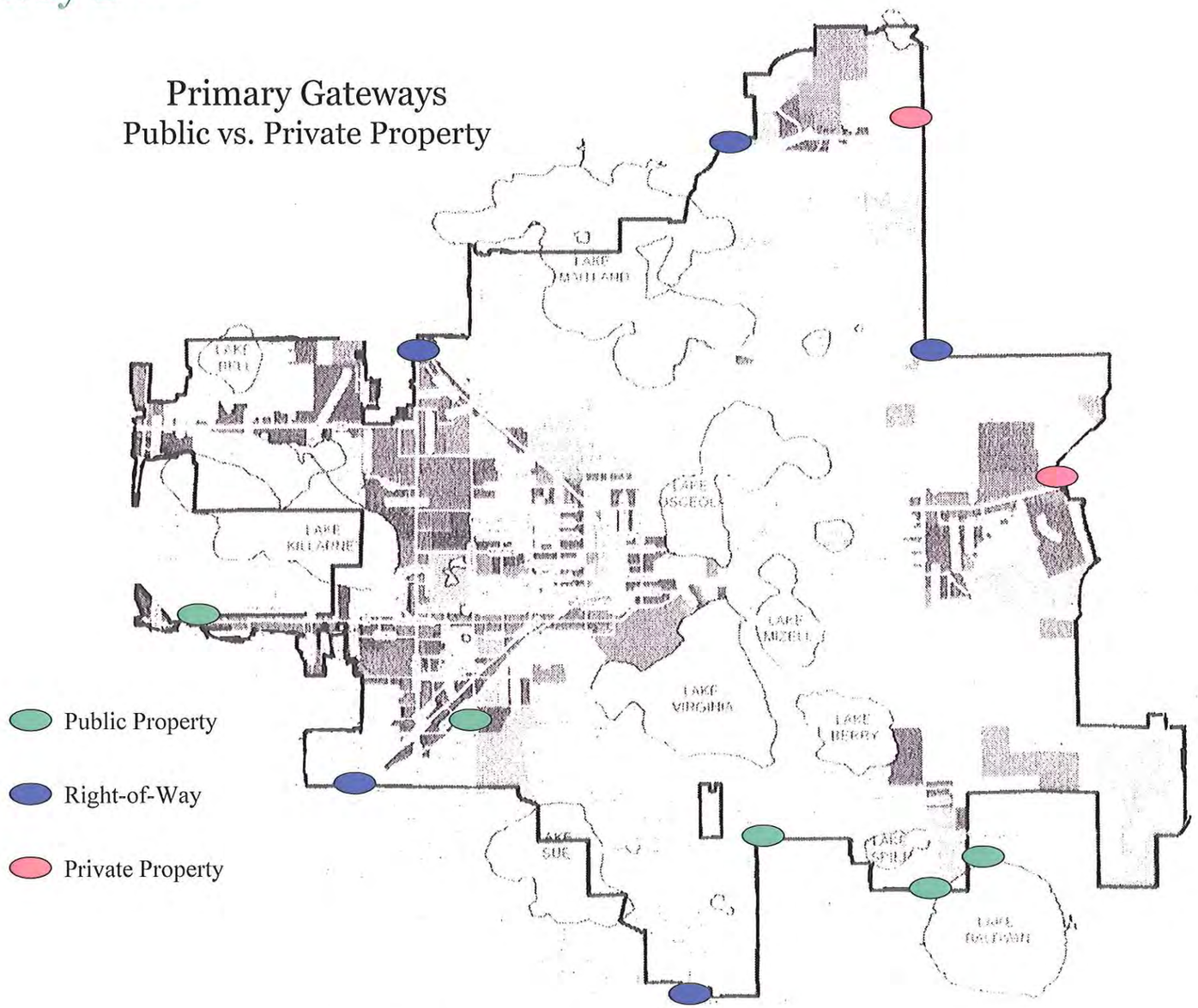
A. Unconstrained – adequate land for prominent gateway & appropriate landscape
   i. with traffic (right-side) locations - preferred
   ii. cross traffic (left-side) locations

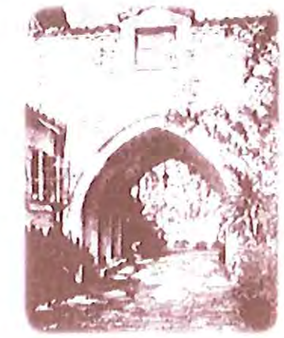
B. Constrained – limited right-of-way and supporting land for gateway feature & landscape
   i. road edge locations
   ii. median locations

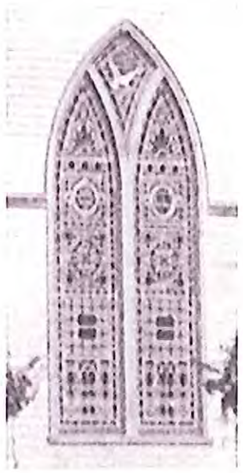
Secondary Gateways (not shown)

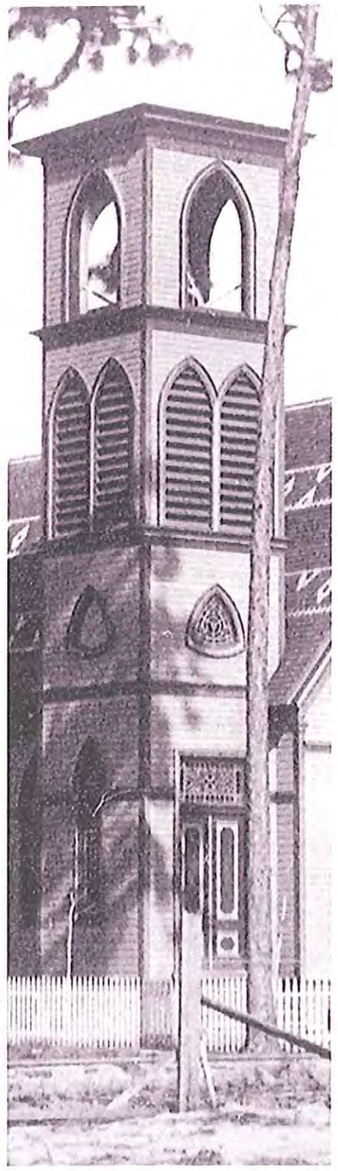
Tertiary Gateways (not shown)

Primary Gateways
Public vs. Private Property









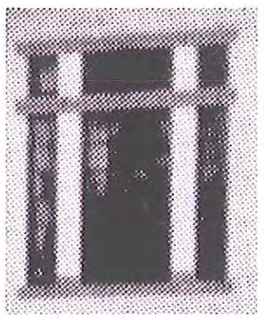
IV. Typology – Historical Precedents

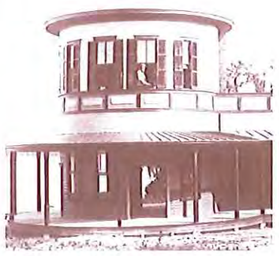
Arts & Crafts

With its founding in 1883, Winter Park's early development parallels the Arts and Crafts movement in America which generally spans from 1880 through World War I. Design elements for this period can be found both in the historical record of early Winter Park structures, and in buildings still existing today, like the golf course club house and Mr. Morse's cottage on Interlachen Avenue. The style was applied most recently to the city's Public Safety Building in 2001.

Contained in the Morse Museum of American Art is not only an extensive collection of Tiffany windows and lamps but also a major collection of American pottery and Gustav Stickley furniture. The peacock, which forms the City of Winter Park seal, stems from this period of the city's founding and is reflective of the symbolism found in the Museum.

Winter Park is blessed with this rich architectural and design history that is nationally important. Even though arts and crafts design has seen a resurgence in recent years with trendy new applications throughout Florida, it is hard to deny the appropriateness of this design style for public applications in Winter Park. It supports the New England feel of the community while putting Winter Park on par with other great communities such as Coral Gables, Florida and Pasadena, California.





IV. Typology – Element Types

Primary Feature for Fairbanks & I-4

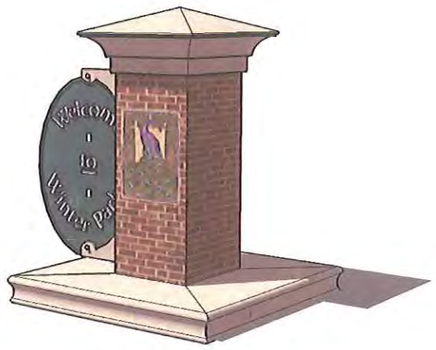
Designer's Notes

Perhaps the common strategy for a gateway plan would be to design one standard element and then to replicate it at all the designated gateway locations. Our approach was to develop a family of elements that have the same distinct style harmonious with the City's character and history. These elements are designed for the different conditions previously detailed such as for constrained locations or median conditions, etc. The City may want to consider using a combination of elements, for example the element for the median can also be combined with column features. This would be particularly effective at the Orlando Avenue gateway coming in from Maitland. Smaller versions of the elements could be used at secondary locations.

Primary Feature for Unconstrained Locations

Primary Feature for Median Conditions

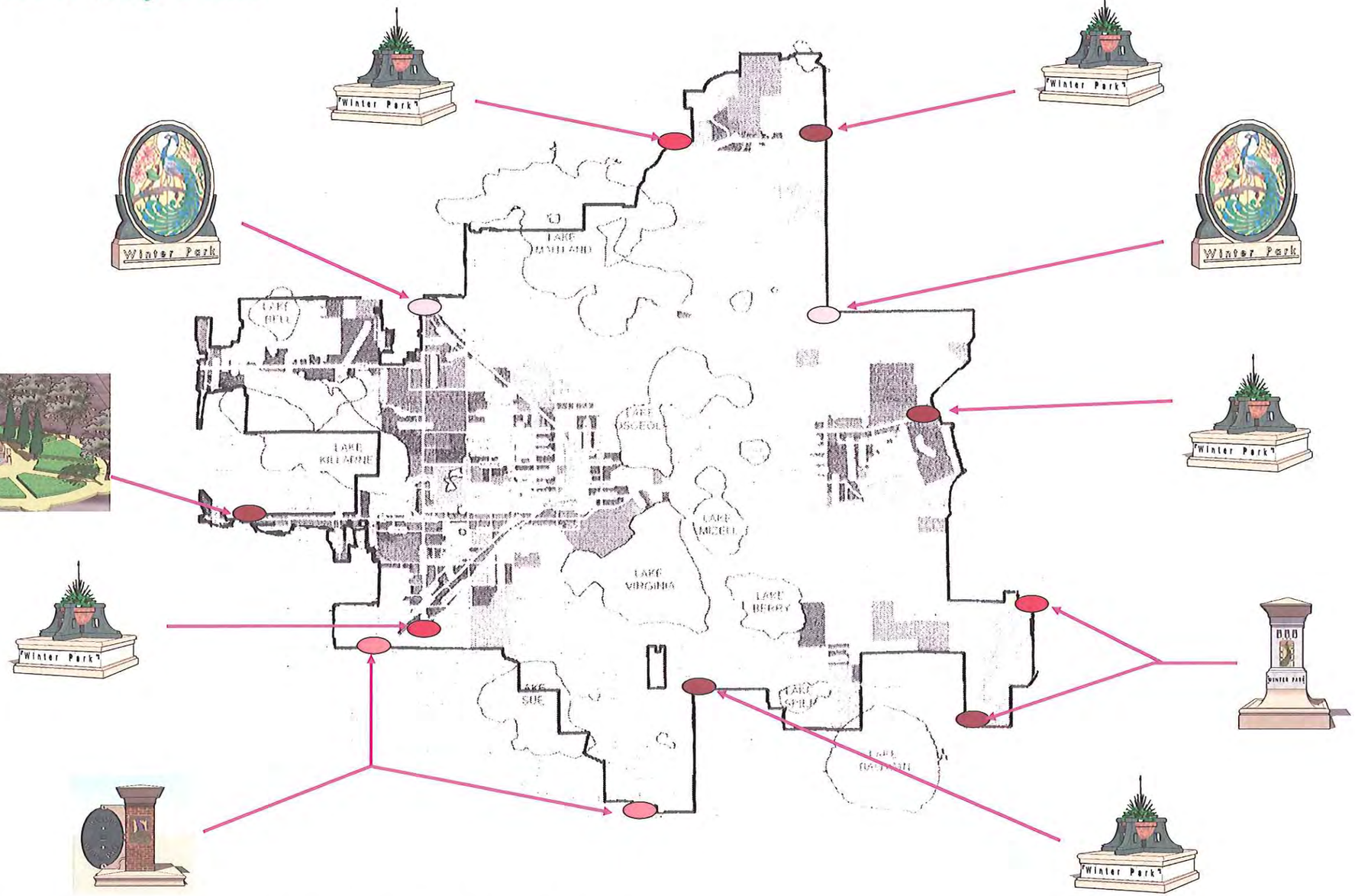
Column Feature for Right-of-Way Locations and Secondary Locations



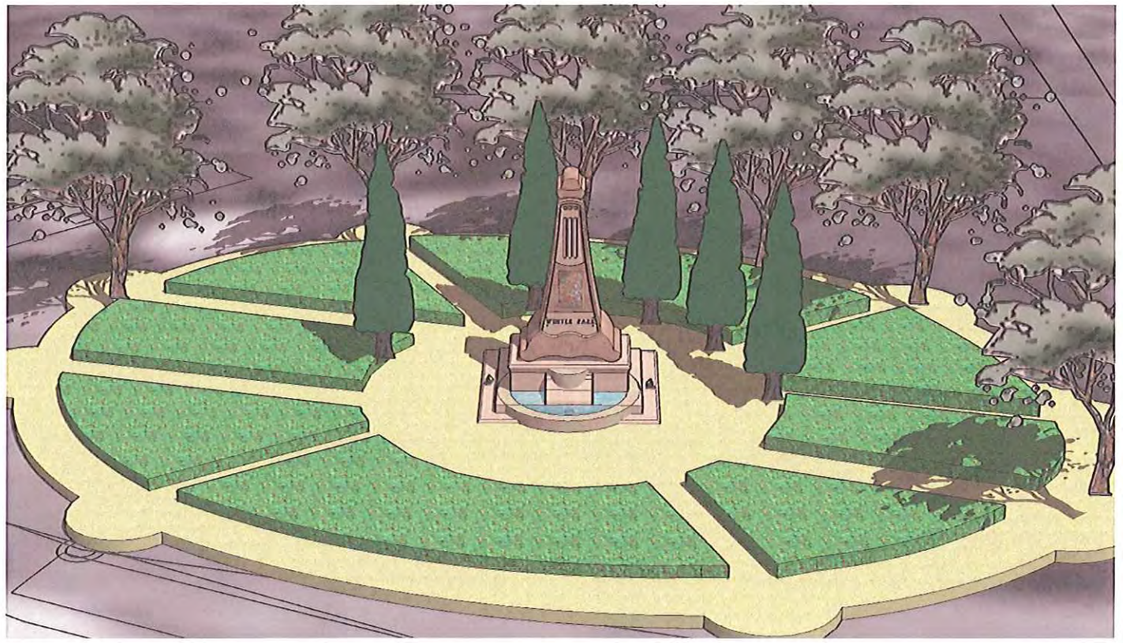
Column Feature for Primary Right-of-Way Locations

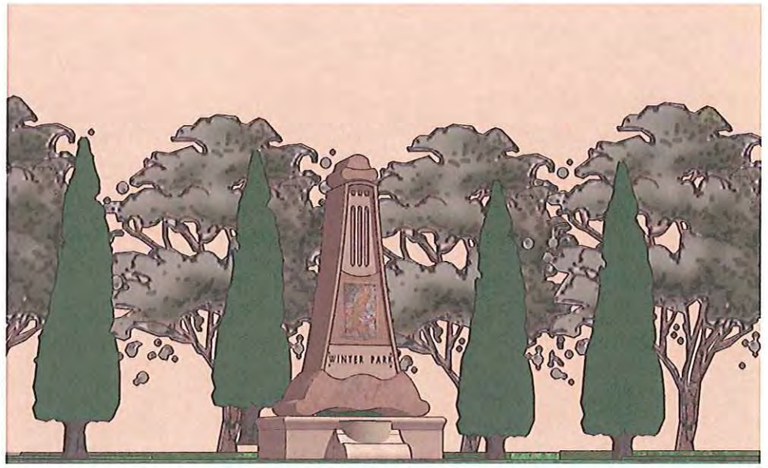
Alternative Column Feature for Primary Right-of-Way Locations

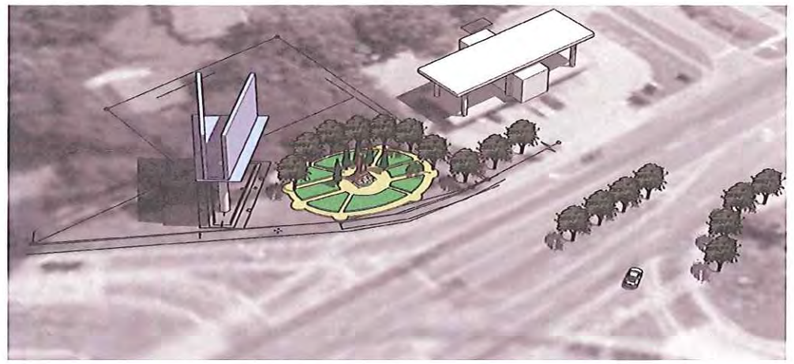
V. The Gateway Plan

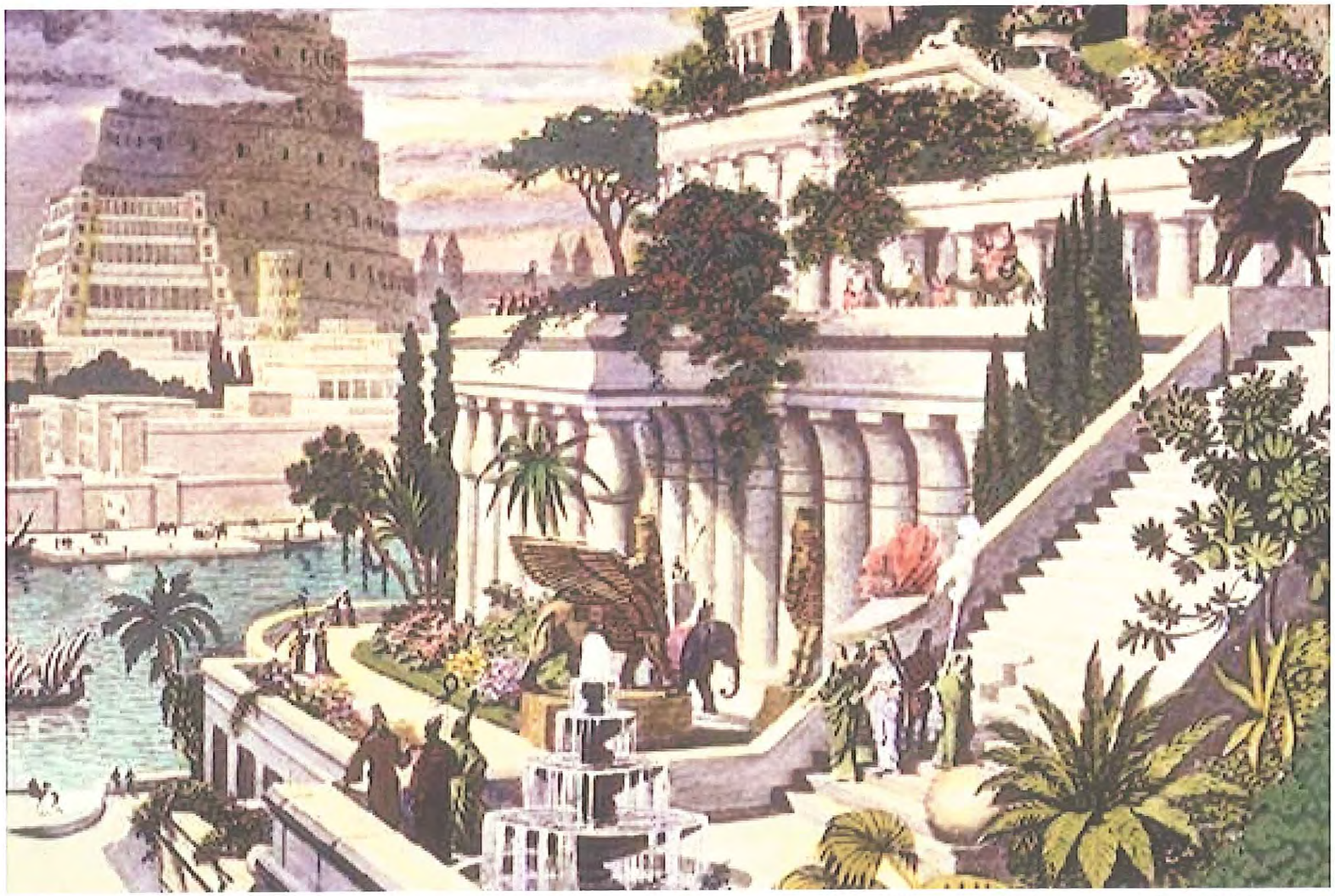


V. The Gateway Plan – Fairbanks Gateway









With over $2 million dollars for landscape coming from FDOT, perhaps the Fairbanks & I-4 entrance way should more resemble the Hanging Gardens of Babylon!

V. The Gateway Plan -- Visualizations

Primary Site 4 – Winter Park Road at Orlando City Limits

Winter Park Gateway Design Master Plan

Primary Site 5 – Lakemont at Baldwin Park Entrance

V. The Gateway Plan -- Visualizations

Primary Site 2 – Orange Avenue at Orlando City Limits

Primary Site 7 – Aloma Avenue at City Limits/Balfour Drive

V. The Gateway Plan -- Visualizations

Secondary Site – Summerfield & Ranger Boulevard

V. The Gateway Plan: Implementation Costs & Strategies

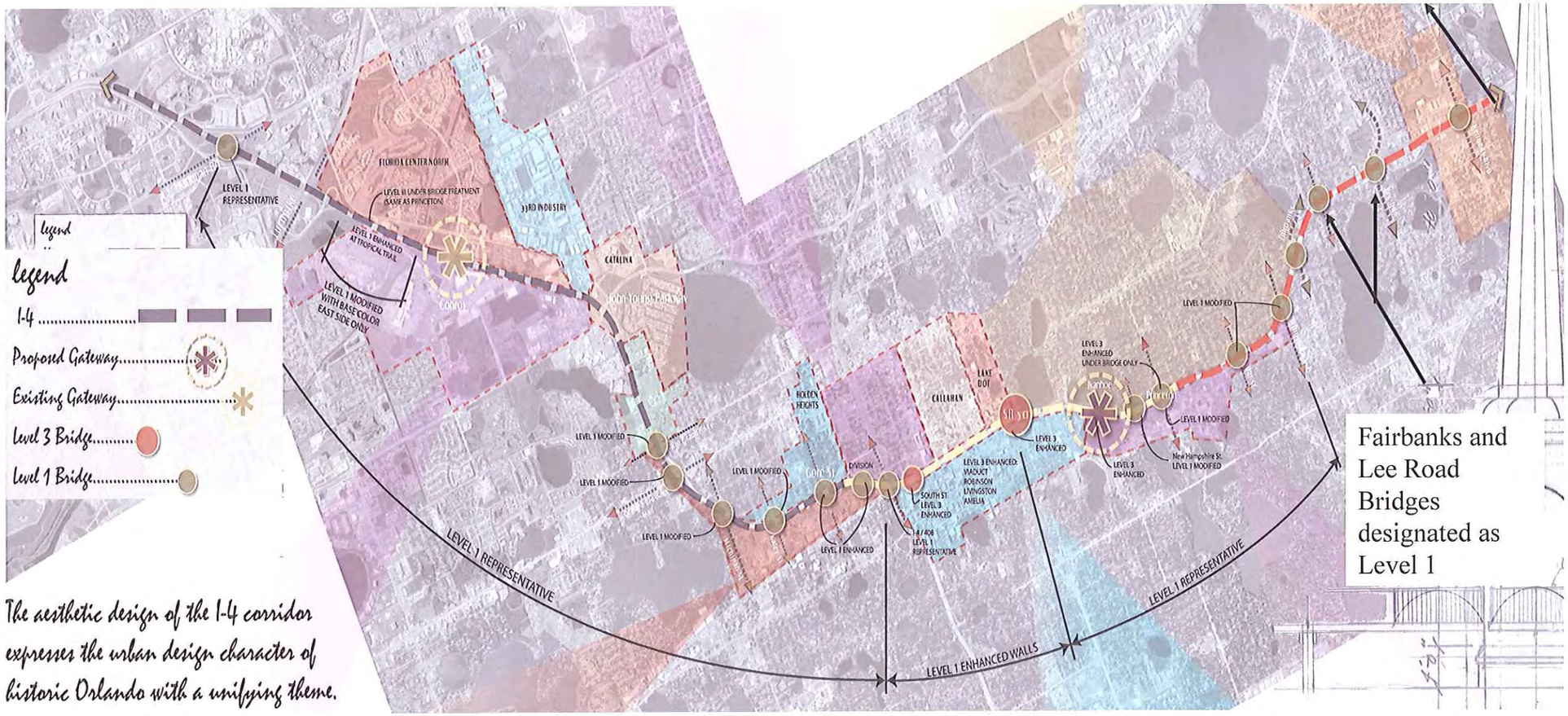
Estimated Costs

These costs are pending estimates by suppliers and will be included in the 100% submittal.

Implementation Strategies

Recognizing the constrained nature of the City's budget, the Winter Park Gateway Program encourages public/private partnerships to implement the entryway improvements. The result is a unified effort on design, funding, and maintenance that celebrates Winter Park's civic history and pride of its residents in the town.

The City will place significant bronze recognition plaques for each gateway honoring the institutions or families as benefactors. Several institutions should be approached to kick-off the effort including Winter Park Rotary, Keep Winter Park Beautiful, and the Morse Genius Foundations.

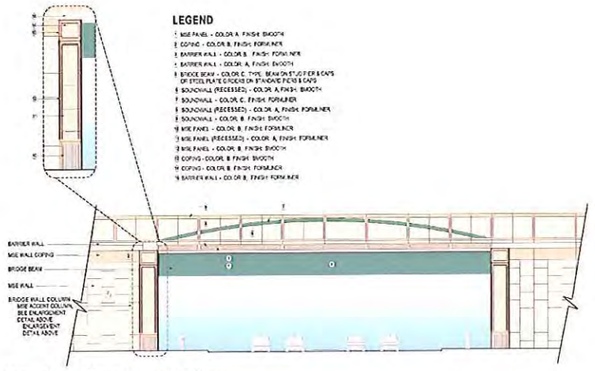


The aesthetic design of the I-4 corridor expresses the urban design character of historic Orlando with a unifying theme.

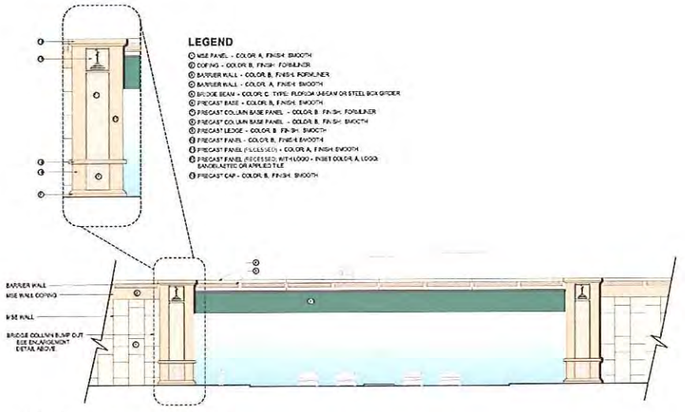
The Bridge Design Plan developed jointly by the City of Orlando and the Florida Department of Transportation in 2006 attempts to coordinate the design of all of the new Intestate 4 bridges in the region in a hierarchical fashion. In this plan, the most significant bridge structures would be located at Conroy and Ivanhoe. Most other bridge treatments including those at Fairbanks and Lee Road in Winter park were designated as less significant Level 1 bridges.

Interstate 4 Master Bridge Design Plan

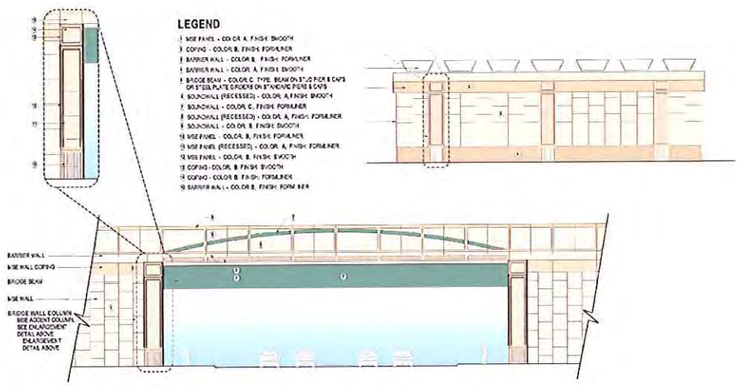
I-4 Bridge Aesthetics
Preliminary Concepts



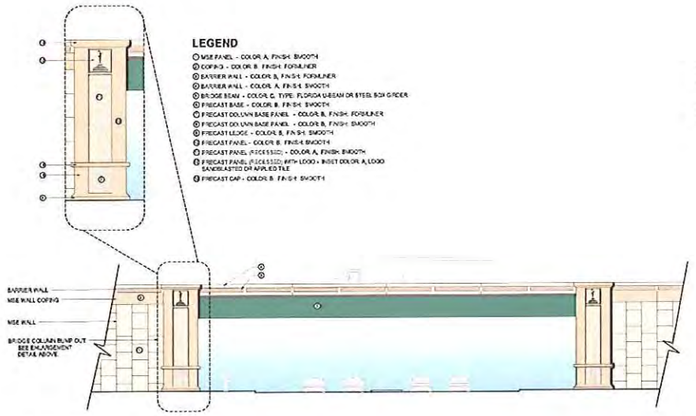
Level 1 - Representative



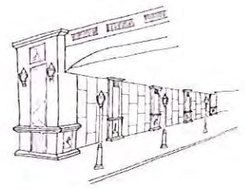
Level 3 - Representative



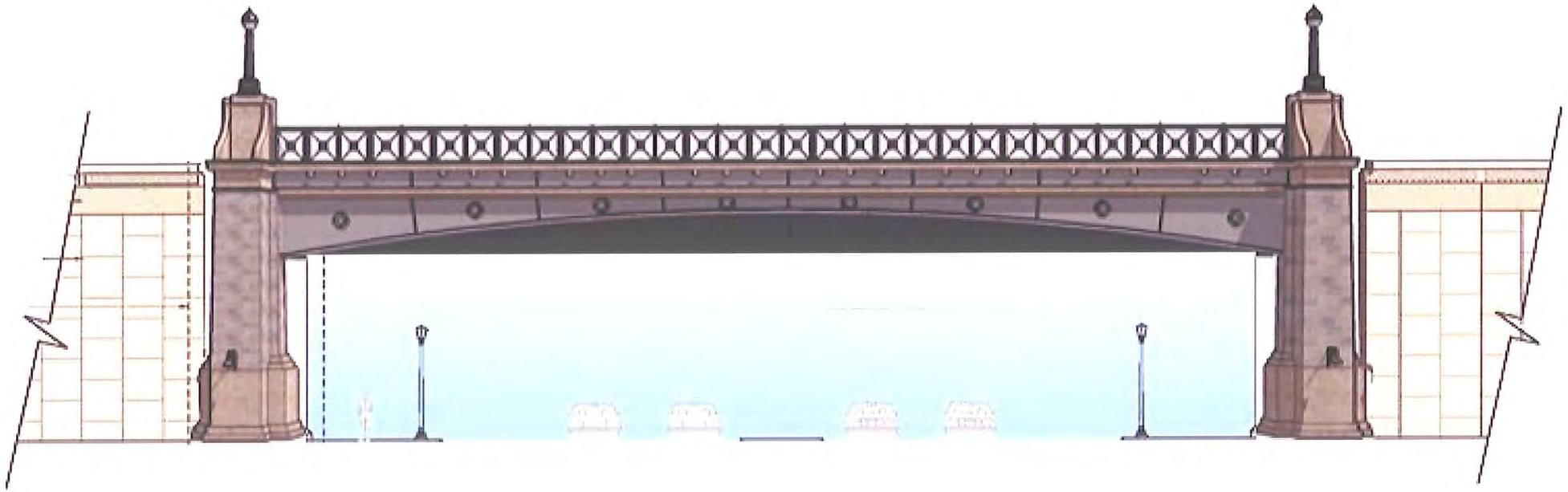
Level 1 - Modified



Level 3 - Enhanced



Initial I-4 & Fairbanks Bridge



FDOT Issues and Concerns - November 6, 2006 Meeting Review

•Avoid the intrusion zone.

•Elevated elements above the bridge require separate support system 6" from back of barrier.

• Elevated elements above bridge can only be 4 feet above barrier. (May be further negotiated.)

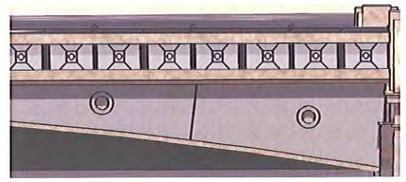
• Additional roadway lights will not be allowed.

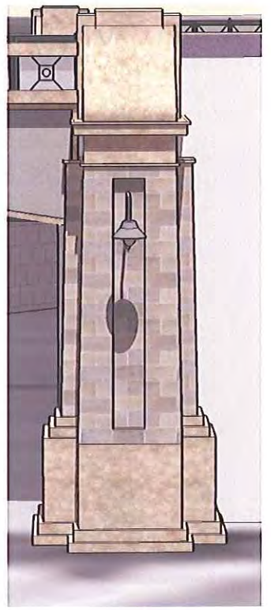
• Flexibility on corner column designs.

• Unique design of bridge beam facades acceptable.

• A Joint Planning Agreement (JPA) will be required once FDOT & City agree on a design.

V. The Gateway Plan





Interstate 4 and Fairbanks Gateway Preliminary Revenue and Cost Estimates

Revenues (FDOT)

Option A: $1,032,128

Option B: $1,430,116

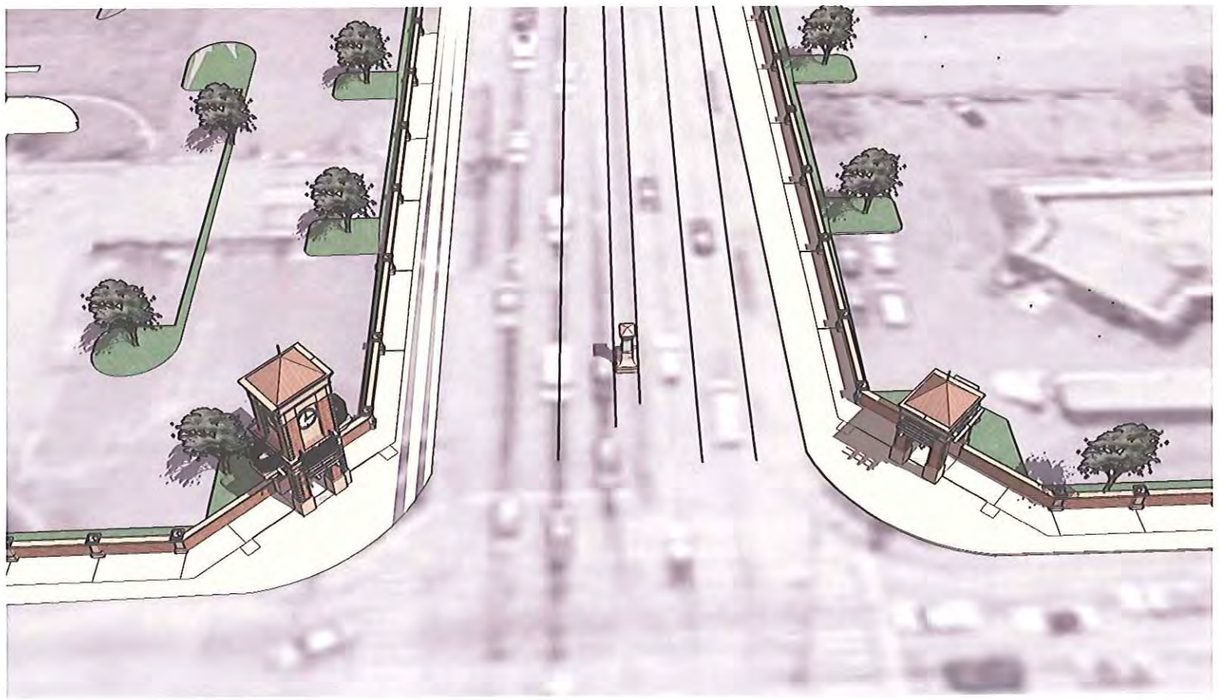
Option A funding include allocated Level 1 Enhanced allotment for the Fairbanks Bridge, plus reallocated resources from the Wymore and Riddle bridges.

Option B funding includes the combined total from Option A plus additional resources from a decision by the City to reduce the design level of the Lee Road Bridge from Level 1 Enhanced to Level 1 Representative thus freeing an addition $397,040 for the Fairbanks bridge.

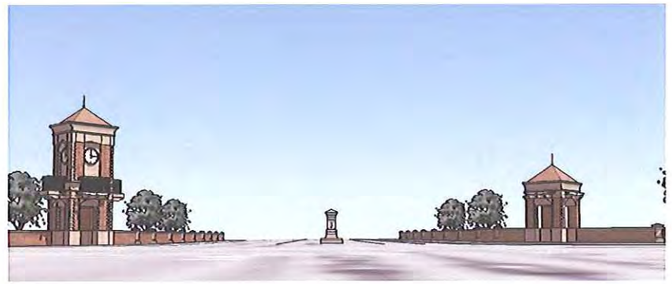
Costs

Cost for the bridge shall be determined in the design development phase of the project in cooperation with the Florida Department of Transportation

V. The Gateway Plan



Fairbanks & Orlando Gateway Feature



i. Secondary Gateway Locations, Pictures & Notes
ii. FDOT Bridge Revenue Calculations
iii. Additional Concepts & Visualizations

Appendix 1 – Secondary Gateway Locations

SITE 3: Ranger Boulevard @ Winter Park Pines

Notes: City right-of-way between street and sidewalk
Recommendation: Level 3

SITE 3A: Ranger Boulevard @ Summerland Ave.

Notes: Alternative Site 3 location
City right-of-way between street and sidewalk
Recommendation: Level 2

Appendix 1 – Secondary Gateway Locations

SITE 4: Bike Trail @ Banchory Bridge.

Notes:

Recommendation: Level 2 with Special features for pedestrians.

SITE 5: Cady Way @ Bike Trail & Winter Park Pines

Notes: **City owned property**
Recommendation: Level 2
Need to underground power.

Appendix 1 – Secondary Gateway Locations

SITE 6: Bike Trail @ Ward Park & City Limits

Notes: City owned property
Recommendation: Level 2
Great location to great visitors to Winter Park.

SITE 8: Aloma Avenue @ Lakemont Avenue

Notes: Private Property
Recommendation: Special core city gateway similar to that at Fairbanks and Orange Avenue.

Appendix 1 – Secondary Gateway Locations

SITE 12: General Rees @ Orlando City Limits

At city limits

north of city limits
provides more land for feature

SITE 13: Parkland Drive @ General Rees

The City's welcome sign is located just west of Sannbina Street

Appendix 1 – Secondary Gateway Locations

SITE 14: Sycamore Drive @ General Rees

SITE 15: Northwood Boulevard, North of Corrine Dr.

Appendix 1 – Secondary Gateway Locations

SITE 16: East Ends Avenue @ Northwood Boulevard

SITE 17: Hammerlin Avenue @ Orlando City Limits

Appendix 1 – Secondary Gateway Locations

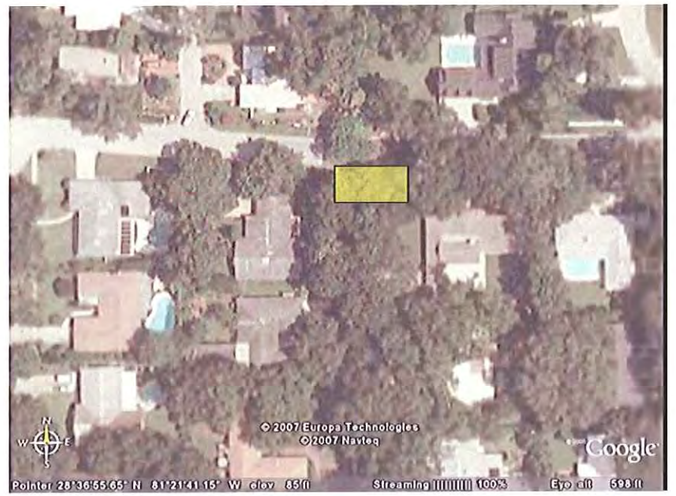
SITE 19: St. George Avenue @ Oaks Street

SITE 20: Glenridge Way @ Upper Park Road

Appendix 1 – Secondary Gateway Locations

SITE 21: Wymore Road @ City Limits

SITE 22: Sunnyside Dr. @ Juanita Rael



Appendix 1 – Secondary Gateway Locations

SITE 23: Sunnyside Dr. @ Brock

SITE 24: Sunnyside Dr. @ Dixie Pkwy

Appendix 1 – Secondary Gateway Locations

SITE 25: Sunnyside Dr. @ Alpine Dr.

SITE 26: Park Ave. @ Maitland City Limit

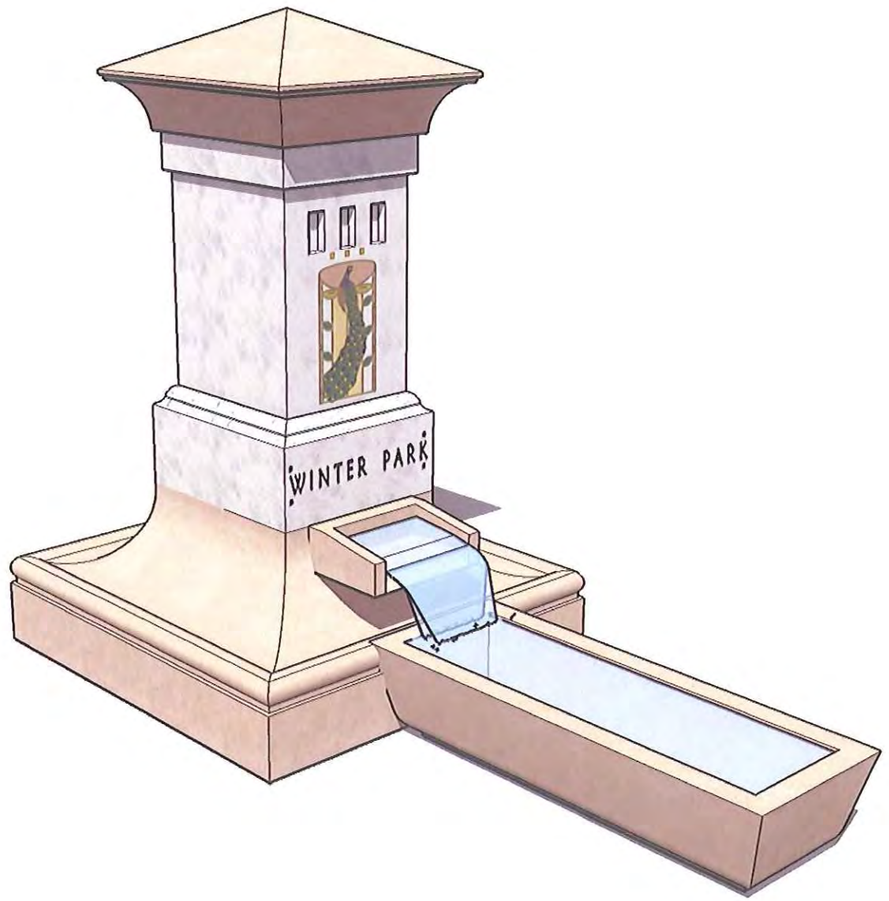
Appendix ii. – FDOT Bridge Revenue Calculations

	Level of Treatment			
Area	**Level 1 Representative**	**Level 1 Enhanced**	**Level 3 Representative**	**Level 3 Enhanced**
Fairbanks	$461,940	$716,700	$900,985	$1,139,565
Riddle	$223,450	$418,838	$610,398	$765,528
Wymore	$133,040	$256,080	$457,515	$703,595
Lee	$156,490	$554,478	$726,193	$971,173
Total	$974,920	$1,946,096	$2,695,091	$3,579,861

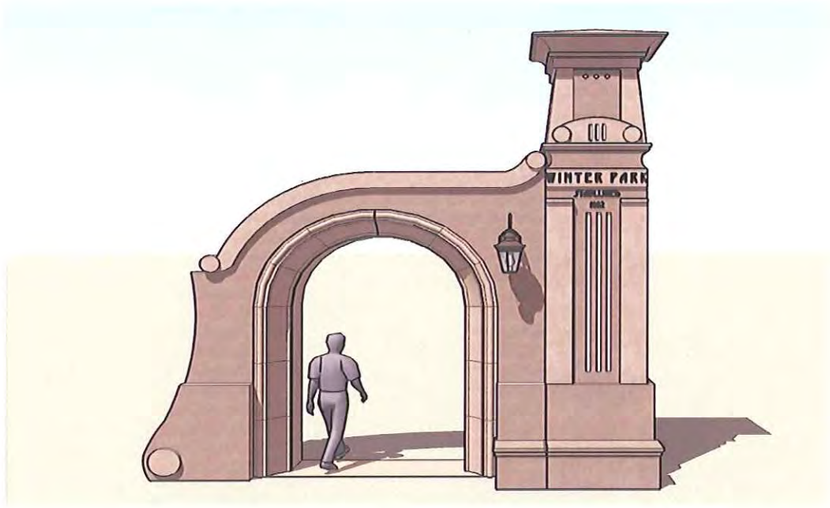
Funding Notes from meeting with FDOT on May 31, 2007

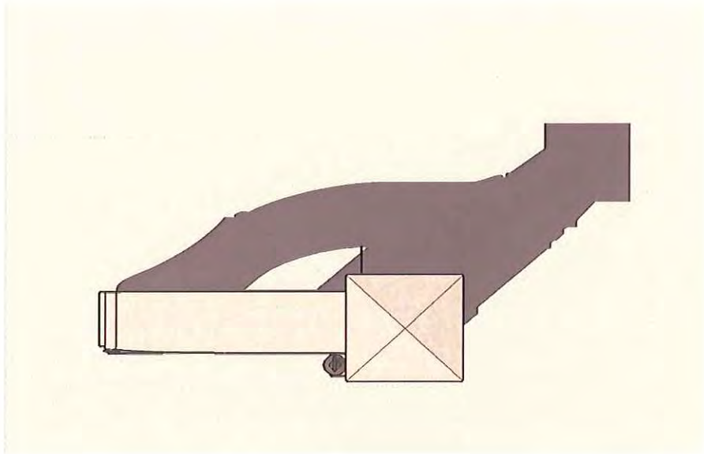
- FDOT's level of funding commitment is at the Level 1 Enhanced allocation.
- Per Orange County, the bridges at Riddle and Wymore will receive Level 1 Representative designs.
- The additional unused resources allocated for Riddle and Wymore bridges can be used for the Fairbanks bridge.
- Total available for the Fairbanks Bridge is $1,032,128
- The Lee Road Bridge will receive a Level 1 Enhancement allocation of $554,478. If the City were to lower the bridge treatment for this bridge to Level 1 – Representative an additional $397,988 would be available for the Fairbanks Bridge, bringing the total to $1,430,116.
- A Joint Planning Agreement is required between the City of Winter Park and the Florida Department of Transpiration regarding the design and maintenance of the bridge. The City can save on the cost of inflation by entering into an agreement early with FDOT and fix the agreed to funding cost in 2007 dollars. Thus, the FDOT will become responsible for any inflation cost regarding the bridge over future years.

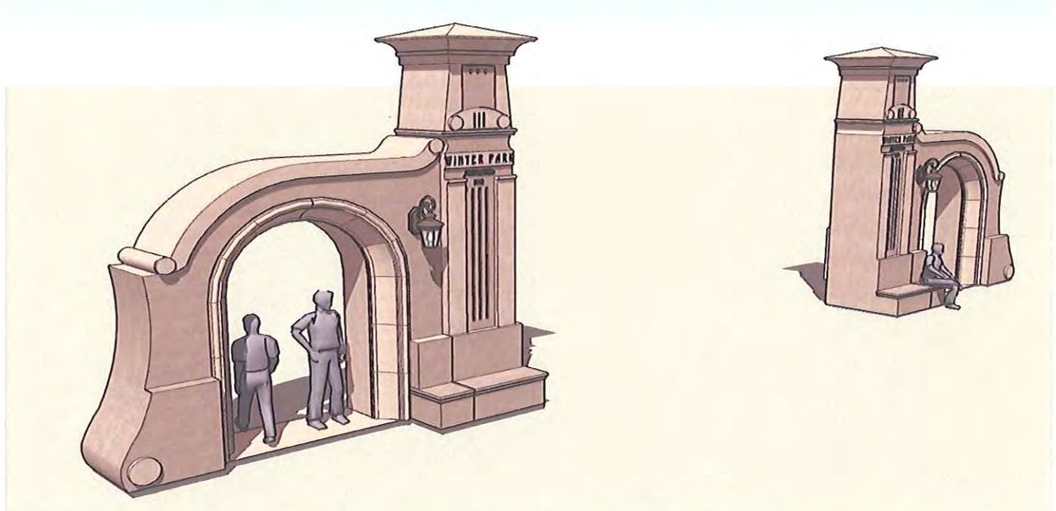
Appendix iii. – Pier with Water Feature

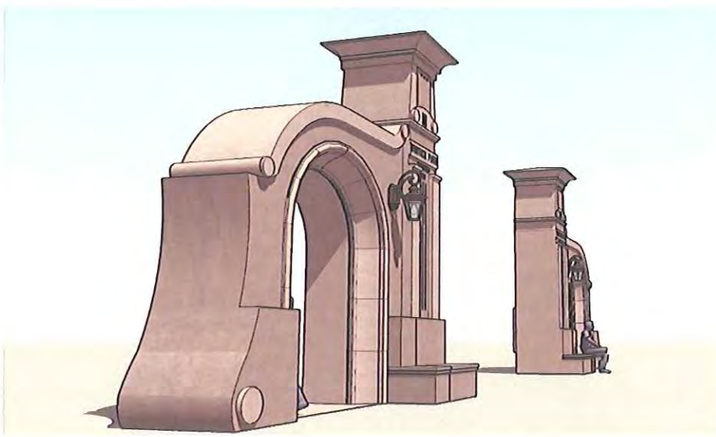


Appendix iii. – Column and Arch









Appendix iii. – Alternative Visualization

Primary Site 7 – Aloma Avenue at City Limits/Balfour Drive

Appendix iii. – Alternative Visualization

Primary Site 11 – Orlando Ave. at Maitland City Limits

US Highway 17-92 PD&E Study

GATEWAY CORRIDORS

18

PRELIMINARY ENGINEERING REPORT

FINAL

SR 15/600 (US 17/92) PD&E Study

From Norfolk Avenue to Monroe Street
Orange County, Florida

Financial Project Number: 408429-1-22-01
Federal Aid Project Number: 3993 045 P

This document presents the evaluation of the proposed congestion management improvements for SR 15/600 (US 17/92) from Norfolk Avenue to Monroe Street in Orange County, Florida. The proposed action addressed herein involves the implementation of congestion management strategies including the proposed extension of SR 423 (Lee Road) from SR 15/600 (US 17/92) to a connection with Denning Drive and Solana Avenue.

Prepared for:

FLORIDA DEPARTMENT OF TRANSPORTATION
District Five
719 South Woodland Boulevard
DeLand, Florida 32720

JULY 2004

PRELIMINARY ENGINEERING REPORT

Financial Project Number: 408429-1-22-01
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SR 15/600 (US 17/92) PD&E Study
From Norfolk Avenue to Monroe Street
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Prepared for:
FLORIDA DEPARTMENT OF TRANSPORTATION
District Five
719 South Woodland Boulevard
DeLand, Florida 32720

Prepared by:
DRMP, INC.

July 2004

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a Registered Professional Engineer in the State of Florida practicing with DRMP, Inc. and that I have supervised the preparation and approve the evaluation, findings, opinions, conclusions, and technical advice hereby reported for:

FINANCIAL PROJECT ID No.:	**408429-1-22-01**
FEDERAL AID PROJECT No.:	**3993 045 P**
PROJECT:	**SR 15/600 (US 17/92)** **From Norfolk Avenue to Monroe Street** **Orange County, Florida**

This report includes a summary of data collection efforts, corridor analyses, and conceptual design analyses for the SR 15/600 (US 17/92) PD&E Study. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering and planning as applied through professional judgment and experience.

Signature: _____

Name: **Mark Prochak, P.E.**

P.E. No.: **43532**

Date: _____

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

1.0 SUMMARY

1.1 Commitments

The following represents the commitments made by FDOT during the SR 15/600 (US 17/92) study addressed in this document:

The FDOT is committed to continuing its working relationship with the City of Winter Park and METROPLAN ORLANDO during subsequent project phases to ensure that certain components of the preferred build alternative continue to be addressed following the Location and Design Concept Acceptance (LDCA) by the Federal Highway Administration (FHWA). In particular, FDOT and the City of Winter Park have entered into a Memorandum of Understanding (MOU) (see Appendix A) to "cooperate with each other in order to maximize the use and allocation of the monetary resources each are entrusted with" during subsequent project development activities. The overall project commitments, including those detailed in the MOU, are summarized below.

Commitments by the City of Winter Park:

- Construct the SR 423 (Lee Road) Extension prior to or at the same time as the enhancements along SR 15/600 (US 17/92);
- Relocate existing bicycle facilities from the SR 15/600 (US 17/92) corridor to Denning Drive prior to the construction of the SR 15/600 (US 17/92) enhancements;
- Provide funding for any sidewalk widths over six (6) feet;
- Provide funding for landscape and/or aesthetic enhancements associated with the project;
- Provide funding for the incremental cost associated with the texturing of the center bi-directional turn-lane along SR 15/600 (US 17/92); and,
- With FDOT, agree to the funding responsibilities for street lighting during the final design phase.

Commitments by the FDOT:

- Provide funding for the remaining portions of the project. The MOU states that the extension of SR 423 (Lee Road) shall be funded and completed prior to or at

the same time as the construction of the enhancements along SR 15/600 (US 17/92). If both projects are funded together, FDOT may elect to proceed with the construction of both projects at or about the same time;

- Coordinate with LYNX and/or regional transit authorities to evaluate potential sidewalk connections to adjacent land uses and/or transit features such as bus shelters;

- Coordinate with the City of Winter Park during subsequent project phases to ensure the placement of pedestrian refuge islands accomplish the goals and objectives of such facilities while minimizing impacts to adjacent properties;

- Re-evaluate, during final design, the proposed intersection geometry and turning radii at the intersections of SR 15/600 (US 17/92) and Fairbanks Avenue and SR 15/600 (US 17/92) and Webster Avenue (comment received from METROPLAN ORLANDO citizens Advisory Committee following the November 13, 2003 Public Hearing);

- Coordinate with local government and regulatory agencies relative to the final design of stormwater management facilities in conjunction with the final design of the proposed improvement.

1.2 Recommendations

The Florida Department of Transportation (FDOT) recommends that the preferred build alternative as shown in Figure 1-1, be implemented as the proposed action for providing safety, congestion management and aesthetic improvements along SR 15/600 (US 17/92) from Norfolk Avenue to Monroe Street. Appendix B contains the Conceptual Design Plans for the preferred alternative. The proposed action also includes the easterly extension of SR 423 (Lee Road) from SR 15/600 (US 17/92) to Denning Drive near Solana Avenue (see Figure 1-2) as well as median modifications along SR 15/600 (US 17/92) north of SR 423 (Lee Road) to improve turn lane storage and queue lengths.

Minor deviations from the full extent of the proposed action occur at select locations within these limits, as follows:

From Norfolk Avenue to Orange Avenue (SR 527): The continuous two-way center left-turn lane would not be implemented in this section because the existing and proposed configuration includes flush (painted) left-turn storage lanes. However, to be consistent with the proposed City of Orlando improvements along SR 15/600 (US 17/92) from SR 50 (Colonial Drive) to Norfolk Avenue, the proposed action addressed in this document will include sidewalk widening and the placement of a pedestrian refuge island in the vicinity of Leith Avenue

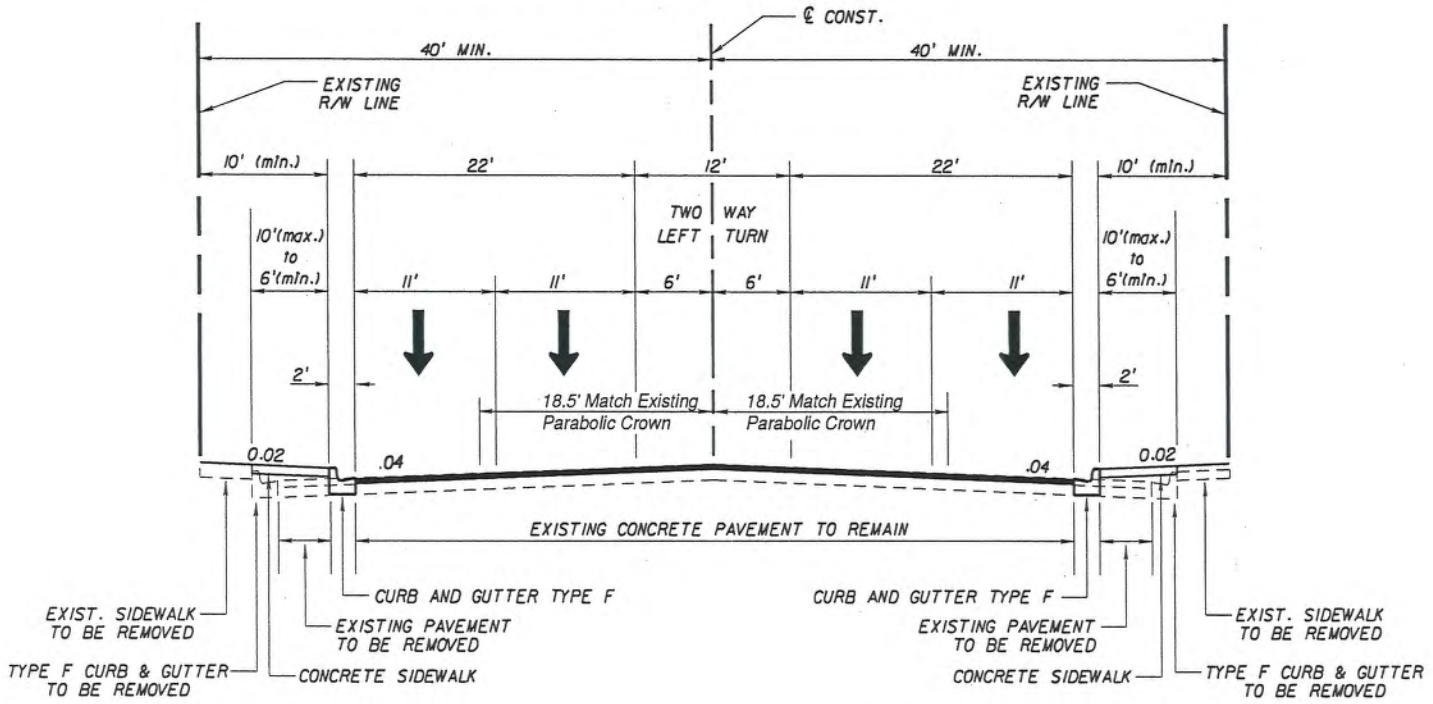
From Gay Road to Lee Road: The continuous two-way center left-turn lane would not be implemented in this section because the existing and proposed configuration includes a raised concrete traffic separator in this section.

From Lee Road (SR 423) to Monroe Street: The recommended improvements in this section include median modifications only in order to enhance left-turn storage conditions (see Appendix B). A minor re-alignment of Solana Avenue east of SR 15/600 (US 17/92) has been suggested within these limits, as shown on the Conceptual Design Plans located in Appendix B. However, if implemented, the cost of this re-alignment will be the responsibility of the City of Winter Park.

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	408429-1-22-01	WORK PROGRAM ITEM		COUNTY NAME	ORANGE
STATE PROJECT NO.	75030	ROAD DESIGNATION	SR 15/600 (US 17/92)	LIMITS/MILEPOST	MP 4.661 TO MP 6.663
FEDERAL AID PROJECT NO.	3993045P	PROJECT DESCRIPTION	TARFFIC OPS IMPROVEMENT ON SR15/600 (US 17/92)		
			FROM NORFOLK AVENUE TO MONROE STREET		

PROPOSED ROADWAY TYPICAL SECTION



FLUSH MEDIAN TYPICAL SECTION ALTERNATIVE

APPROVED BY	FDOT CONCURRENCE	FHWA CONCURRENCE
Mark Prochak, P.E. Engineer Of Record Date	Annette K. Brennan, P.E. FDOT District Design Engineer Date	N/A Printed Name FHWA Transportation Engineer Date

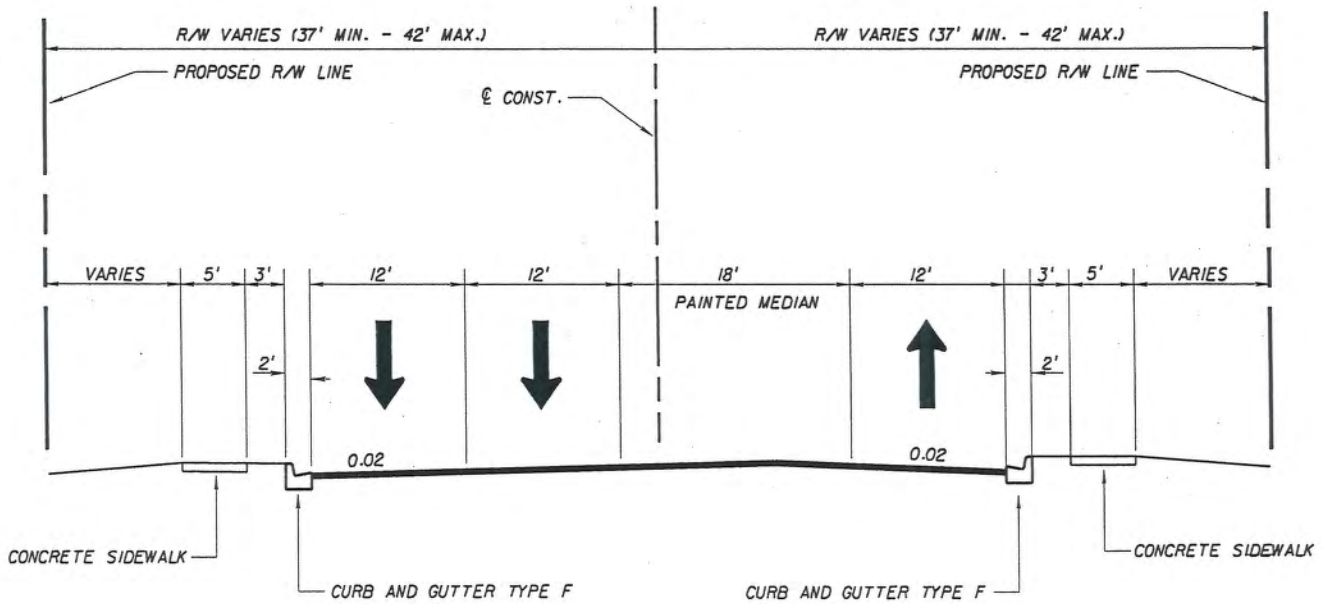
01/09/2004 09:03:16 AM G:\Engineering\Roadway\typdrd01.dgn

Figure 1-1

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID	408429-1-22-01	WORK PROGRAM ITEM		COUNTY NAME	ORANGE
STATE PROJECT NO.	75030	ROAD DESIGNATION	LEE ROAD EXTENSION	LIMITS/MILEPOST	N/A
FEDERAL AID PROJECT NO.	3993045P	PROJECT DESCRIPTION	TRAFFIC OPS IMPROVEMENT		
			LEE ROAD EXTENSION FROM SR15/600 (US 17/92) TO DENNING DRIVE		

PROPOSED ROADWAY TYPICAL SECTION



3 LANE URBAN TYPICAL SECTION WITH A FLUSH MEDIAN
FROM SR 15/600 US (17/92) TO DENNING DRIVE

APPROVED BY	FDOT CONCURRENCE	FHWA CONCURRENCE
Colette F. Moss, P.E. Engineer Of Record — Date	Annette K. Brennan, P.E. FDOT District Design Engineer — Date	N/A Printed Name FHWA Transportation Engineer — Date

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Figure 1-2

2.0 INTRODUCTION

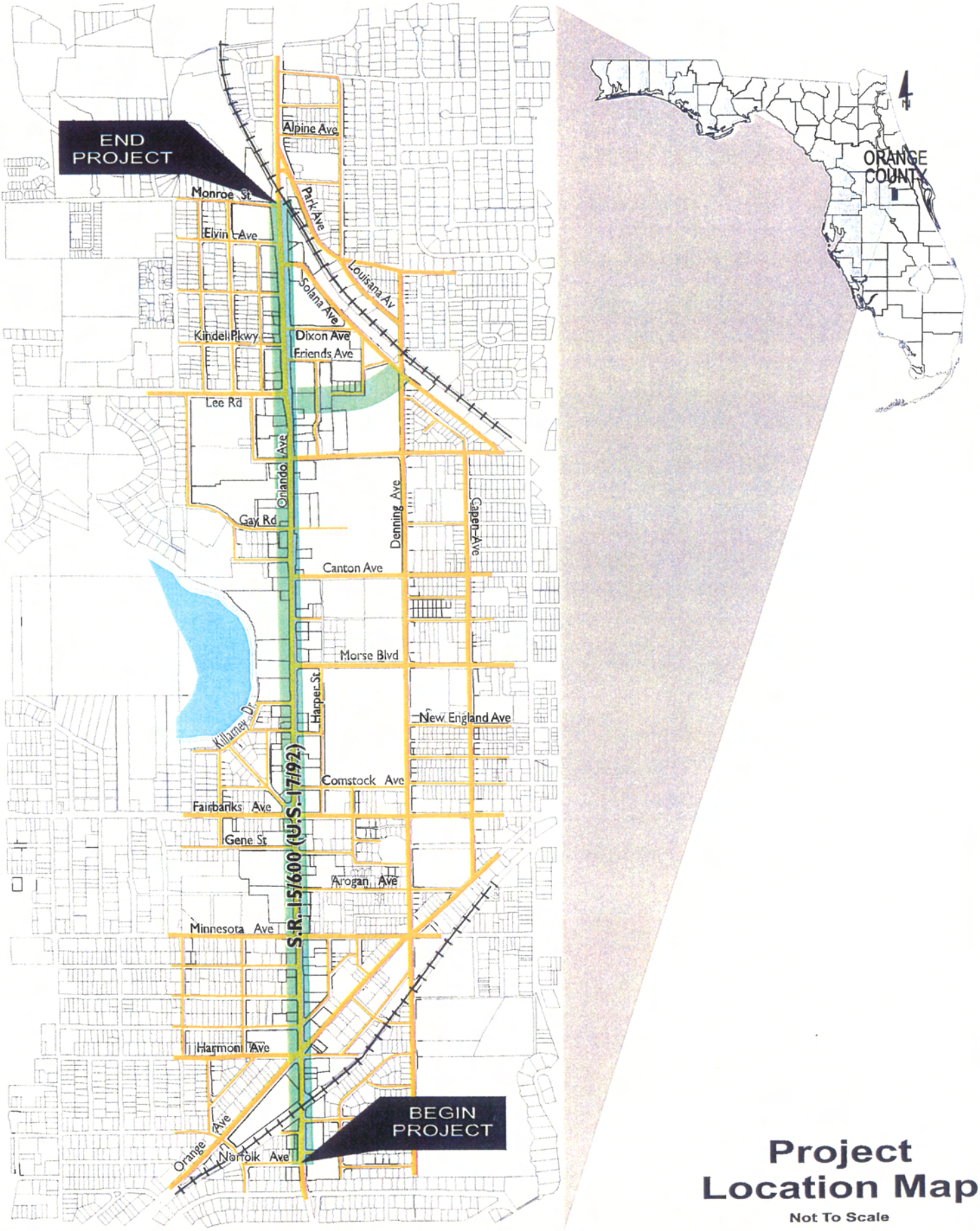
2.1 Purpose

This Preliminary Engineering Report (PER) has been prepared as part of the Florida Department of Transportation (FDOT) Project Development and Environment (PD&E) Study for SR 15/600 (US 17/92) from Norfolk Avenue to Monroe Street located within the city limits of Winter Park in Orange County, Florida. Figure 2-1, Project Location Map, shows the general project limits.

Proposed traffic engineering and congestion management improvements to this segment of SR 15/600 (US 17/92) were identified and documented by METROPLAN ORLANDO in 1996 in the METROPLAN ORLANDO's regional Congestion Management System (CMS) Technical Memorandum. The CMS was incorporated into the METROPLAN ORLANDO's current Year 2020 Long Range Transportation Plan which was adopted in December 2000. Therefore, the SR 15/600 (US 17/92) PD&E Study is consistent with the current adopted urban area long range transportation plan.

In addition, the City of Winter Park identified and documented a desire to improve this section of SR 15/600 (US 17/92) which lies within its jurisdictional boundaries. This desire was documented in conjunction with the City of Winter Park Community Re-development Enhancement Area (CREA) Plan developed in 1998. The City prepared a Corridor Master Plan for proposed improvements to SR 15/600 (US 17/92), also known as Orlando Avenue during the CREA Plan process. The US 17/92 Corridor Master Plan documented potential congestion management improvements to be evaluated during the SR 15/600 (US 17/92) PD&E Study including median modifications, access management, bicycle and pedestrian facility improvements, traffic signal spacing and/or relocation (ie: Park Avenue signal relocation to Solana Avenue), minor intersection improvements, and the potential extension of SR 423 (Lee Road) from the existing SR 423/SR 15/600 (US 17/92) intersection to a connection with Denning Drive, a parallel facility maintained by the City of Winter Park located approximately ¼ mile east of SR 15/600 (US 17/92). The congestion management improvements identified by the City of Winter Park in 1998 served as the point of departure for developing and evaluating preliminary engineering design concepts for the SR 15/600 (US 17/92) PD&E Study.

The purpose of the SR 15/600 (US 17/92) Project Development and Environment (PD&E) Study was to evaluate congestion management alternatives which would improve current traffic operational conditions along this heavily traveled corridor. Existing right-of-way, land use constraints and potential economic impacts prohibit capacity improvements or widening along the mainline. The SR 15/600 (US 17/92) PD&E Study was conducted to identify the most appropriate transportation



SR 15/600 (US 17/92) Project Development and Environment Study
From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 2-1

improvements which would be needed to accommodate existing and project travel demand along SR 15/600 (US 17/92) consistent with area transportation plans and with minimal socio-economic and environmental impact.

FDOT, in association with the City of Winter Park, initiated the SR 15/600 (US 17/92) PD&E Study in November 2001. The study involved the preparation of environmental documents and engineering reports that support the evaluation of potential social, economic and environmental impacts associated with providing congestion management and related transportation improvements along SR 15/600 (US 17/92) within the limits described above. These activities were performed in compliance with the National Environmental Policy act (NEPA) of 1969, and associated federal and state laws, regulations, and guidelines.

2.2 Project Description

The existing SR 15/600 (US 17/92) corridor, from Norfolk Avenue to Monroe Street, is an existing four- and six-lane urban principal arterial. SR 15/600 (US 17/92) through the Orlando urban area, serves a number of municipalities including the cities of Orlando, Winter Park, Maitland, Casselberry, Lake Mary, Longwood and Sanford. During the study, the northern study limits were extended to Park Avenue in the City of Maitland strictly for the purpose of including this signalized intersection in the overall traffic operational analysis. This also allowed for a re-evaluation of one of the City's original Corridor Master Plan recommendations involving the potential relocation of the existing traffic signal at Park Avenue to Solana Avenue. The total length of the study section of SR 15/600 (US 17/92), from Norfolk Avenue to Monroe Street, is approximately 2.0 miles.

Within the study limits, there are two distinct lane configurations, median treatments and access classifications. From Norfolk Avenue to Gay Road, the existing roadway is a five-lane section. Two (2) travel lanes are provided in each direction and are separated by a two-way continuous left-turn center lane. Between Gay Road and SR 423 (Lee Road), a distance of approximately 1,600 feet, a concrete traffic separator is used to separate opposing travel lanes and restrict left turn movements left turn movements from the mainline. Signalized intersections with limited turn lane provisions are located at SR 527 (Orange Avenue), Minnesota Avenue, SR 426 (Fairbanks Avenue), Morse Boulevard, Gay Road, Webster Avenue and SR 423 (Lee Road). The existing right-of-way in this area is generally 80 feet.

From SR 423 (Lee Road) to Monroe Street, SR 15/600 (US 17/92) is a five- and six-lane divided facility. A six-lane divided roadway is provided from SR 423 (Lee Road) to just south of the CSX railroad overpass north of Monroe Street. In this area, the outside northbound through-lane is eliminated in order to accommodate the CSX overpass. North of the CSX overpass, a six-lane divided roadway continues north of the existing

Park Avenue signal into the City of Maitland. Access to adjacent properties is restricted in this area. Existing right-of-way in this segment is generally 106 feet.

Congestion management alternatives evaluated during the SR 15/600 (US 17/92) PD&E Study initially included median modifications, intersection improvements, and bicycle and pedestrian facility improvements. In addition, the easterly extension of Lee Road (SR 423) from it's existing terminus at SR 15/600 (US 17/92) across Galloway Drive to a connection with Denning Drive, located approximately ¼ mile east of SR 15/600 (US 17/92) was also considered. This proposed improvement was identified in the City of Winter Park's US 17/92 Corridor Master Plan and was anticipated to alleviate congestion at the existing SR 15/600 (US 17/92) intersections with SR 423 (Lee Road) and Webster Avenue. These signals are closely spaced (within 800 feet) and experience unacceptable levels of service in peak travel periods resulting in long periods of delay. The extension of SR 423 (Lee Road) was initially intended to provide an alternative distribution of traffic on SR 15/600 (US 17/92) by utilizing Denning Drive, a parallel north-south facility. Between SR 527 (Orange Avenue) and Webster Avenue, Denning Drive is currently a four-lane undivided collector.

3.0 NEED FOR IMPROVEMENT

The factors that constitute the need for the proposed improvements include current and projected deficiencies including traffic capacity and congestion at major intersections, safety, consistency with adopted local, state and regional long range transportation plans and growth management plans, and socio-economic demand. These factors are discussed below in more detail.

3.1 Deficiencies

Existing and future year travel demand characteristics were developed for the SR 15/600 (US 17/92) PD&E Study including an analysis of traffic flow conditions at major intersections and roadway segments along the corridor. In analyzing the existing conditions along SR 15/600 (US 17/92), traffic counts were collected and recommended traffic characteristics were established. The analyses of existing conditions along the mainline and major intersections within the corridor were performed based on existing roadway and intersection geometry. The analyses of future conditions along the mainline and major intersections were performed based on a variety of alternative improvement strategies including potential capacity improvements (ie: widening SR 15/600 (US 17/92) to six lanes between Orange Avenue and Lee Road), the potential extension of SR 423 (Lee Road) from SR 15/600 (US 17/92) to Denning Drive, minor intersection improvements and potential traffic signal modifications (ie: relocation of the existing Park Avenue signal to Solana Avenue and the removal of the existing signal at Webster Avenue). The results of the existing and future year travel demand analyses are fully documented in the Design Traffic Technical Memorandum prepared in October 2002, a copy of which is located at the FDOT District Five office. A majority of the information provided in this section of the Preliminary Engineering Report, as well as Section 6.0, Traffic, has been generated from the Design Traffic Technical Memorandum.

Existing year (2001) average annual daily traffic (AADT) volumes range from 30,960 vehicles per day (vpd) to 50,280 vpd. By the year 2025, the traffic volumes along SR 15/600 (US 17/92) are expected to range from 29,700 vpd to 55,400 vpd. Due to potentially significant social and economic impacts, this project was not anticipated to involve a major capacity improvement (ie: widening from four to six lanes) although one of the initial travel demand alternatives involved a widening option for comparative purposes. The traffic analysis of future conditions was based primarily on existing mainline geometry (ie: four lanes from Norfolk Avenue to Lee Road and six lanes from Lee Road to Monroe Street).

Existing and future year traffic operational conditions were evaluated at fourteen (14) locations within the SR 15/600 (US 17/92) study area. These are:

- SR 15/600 (US 17/92) at Orange Avenue (Signalized);
- SR 15/600 (US 17/92) at Minnesota Avenue (Signalized);
- SR 15/600 (US 17/92) at Fairbanks Avenue (Signalized);
- SR 15/600 (US 17/92) at Morse Boulevard (Signalized);
- SR 15/600 (US 17/92) at Gay Road (Signalized);
- SR 15/600 (US 17/92) at Webster Avenue (Signalized);
- SR 15/600 (US 17/92) at Lee Road (Signalized);
- SR 15/600 (US 17/92) at Solana Avenue (**Un-Signalized**);
- SR 15/600 (US 17/92) at Park Avenue (Signalized);
- Denning Drive at Webster Avenue (Signalized);
- Denning Drive at Canton Avenue (Signalized);
- Denning Drive at Morse Boulevard (Signalized);
- Denning Drive at Minnesota Avenue (Signalized); and
- Denning Drive at Fairbanks Avenue (Signalized).

Existing P.M. peak hour turning movement volumes were used for the intersection analysis using standard HCM procedures. Based on this analysis, the following intersections currently operate at LOS F:

- Denning Drive at Fairbanks Avenue
- SR 15/600 (US 17/92) at Orange Avenue
- SR 15/600 (US 17/92) at Fairbanks Avenue
- SR 15/600 (US 17/92) at Webster Avenue

The roadway operational level of service analysis was performed by comparing the P.M. peak hour/peak direction volumes for individual roadway segments against the peak-hour peak-direction capacities.

Based on this comparison the following roadway segments operate below their adopted LOS standard:

- SR 15/600 (US 17/92), between Morse Boulevard and Gay Road – LOS F
- SR 15/600 (US 17/92), between Gay Road and Webster Avenue – LOS F
- Webster Avenue east of SR 15/600 (US 17/92) – LOS F

By the year 2025, the following intersections are expected to operate at LOS F:

- SR 15/600 (US 17/92) at Lee Road

- SR 15/600 (US 17/92) at Webster Avenue
- SR 15/600 (US 17/92) at Morse Boulevard
- SR 15/600 (US 17/92) at Fairbanks Avenue
- SR 15/600 (US 17/92) at Orange Avenue/Harmon Avenue
- Denning Drive at Webster Avenue
- Denning Drive at Fairbanks Avenue
- Denning Drive at Orange Avenue/Minnesota Avenue
- Denning Drive at Morse Boulevard

3.2 Safety

Historical crash data was obtained for the five-year period of 1995 to 1999. During this time, a total of 369 collisions occurred on SR 15/600 (US 17/92) from Orange Avenue to Park Avenue (the nearest signalized intersection north of Monroe Street). It was determined from the analysis of the collision summaries that installation of a median on SR 15/600 (US 17/92) would potentially increase the safety of the roadway. A majority of the head-on, angle and left turn collisions can be minimized if not prevented. These collisions accounted for approximately 36 percent of the total for the five-year period. The trend of these collisions shows the driver at fault failed to yield the right of way. If a median were to be installed, drivers would have limited access to turning lanes therefore minimizing conflict points were head-on, angle and left turn collisions occur.

Approximately 43 percent of the reported crashes were rear end collisions. A majority of the rear-end collisions were caused by careless driving. The trends in the collision summary shows a large number of the rear-end collisions occurred in the through traffic lanes. This demonstrated the driver at fault did not stop when vehicles queued at the traffic signal. From a roadway standpoint there are no changes that can be made to prevent this type of crash. It should also be noted that more than half of the pedestrian collisions occurred between Morse Boulevard and Webster Avenue. This is due to the larger number of pedestrians that travel that section of roadway because of commercial development.

Additional details regarding crash data along SR 15/600 (US 17/92) from Norfolk Avenue to Monroe Street are provided in Section 4.1.9.

3.3 Consistency with Local, State and Regional Transportation Plans

Proposed traffic engineering and congestion management improvements to this segment of SR 15/600 (US 17/92) were identified and documented by METROPLAN ORLANDO in 1996 in the METROPLAN ORLANDO's Regional Congestion Management System (CMS) Technical Memorandum. The CMS was incorporated into the METROPLAN ORLANDO's current Year 2020 Long Range Transportation Plan which was adopted in December 2000. Therefore, the SR 15/600 (US 17/92) PD&E Study is consistent with the current adopted urban area long range transportation plan.

In addition, the City of Winter Park identified and documented a desire to improve this section of SR 15/600 (US 17/92), which lies within its jurisdictional boundaries. This desire was documented in conjunction with the City of Winter Park Community Re-development Enhancement Area (CREA) Plan developed in 1998. The City prepared a Corridor Master Plan for proposed improvements to SR 15/600 (US 17/92), also known as Orlando Avenue during the CREA Plan process. The US 17/92 Corridor Master Plan documented potential congestion management improvements to be evaluated during the SR 15/600 (US 17/92) PD&E Study including median modifications, access management, bicycle and pedestrian facility improvements, traffic signal spacing, minor intersection improvements and the potential extension of SR 423 (Lee Road) from the existing SR 423/SR 15/600 (US 17/92) intersection to a connection with Denning Drive, a parallel facility maintained by the City of Winter Park located approximately ¼ mile east of SR 15/600 (US 17/92).

3.4 Social and Economic Development

The land within the study area is essentially fully developed. The primary land use designations include retail commercial and service-oriented, professional office, light manufacturing and warehousing, single- and multi-family residential and hotel/motel services.

Surface transportation facilities are, and always have been, the backbone of economic development. SR 15/600 (US 17/92) serves as a main artery throughout the Orlando urban area and connects the cultural, historic, recreational and commercial features located within the cities of Orlando, Winter Park, Maitland, Casselberry, Longwood, Lake Mary and Sanford. Proposed improvements to this corridor include congestion management (intersection improvements and operational improvements), minor capacity improvements (potential extension of Lee Road), and multi-modal improvements (improved sidewalks and connectivity to regional off-system bicycle facilities). These improvements and enhancements are expected to benefit the social and economic viability of this corridor and the Winter Park urban area.

Enhancing travel mobility and maintaining access to adjacent land uses, where feasible, will help strengthen economic development within the corridor. Access management has been identified as one of the major issues associated with this project and will be addressed during the development of alternative design concepts for the proposed improvement. In addition, the City of Winter Park has expressed an interest in providing corridor enhancements such as landscaping and streetscaping which will improve the aesthetic qualities of the existing corridor which may influence and encourage economic re-development.

4.0 EXISTING CONDITIONS

4.1 Roadway Characteristics

The study area for the SR 15/600 (US 17/92) PD&E Study is generally bounded by Norfolk Avenue to the south, Monroe Street to the north, Denning Drive to the east and Lake Killarney to the west. Figure 4-1 illustrates the study limits and associated roadway network. The following is a description of existing roadway characteristics for SR 15/600 (US 17/92). Figure 4-2 is a reproduction of the FDOT Straight Line Diagram for this segment of SR 15/600 (US 17/92) and was used to document portions of the following information.

4.1.1 FUNCTIONAL CLASSIFICATION

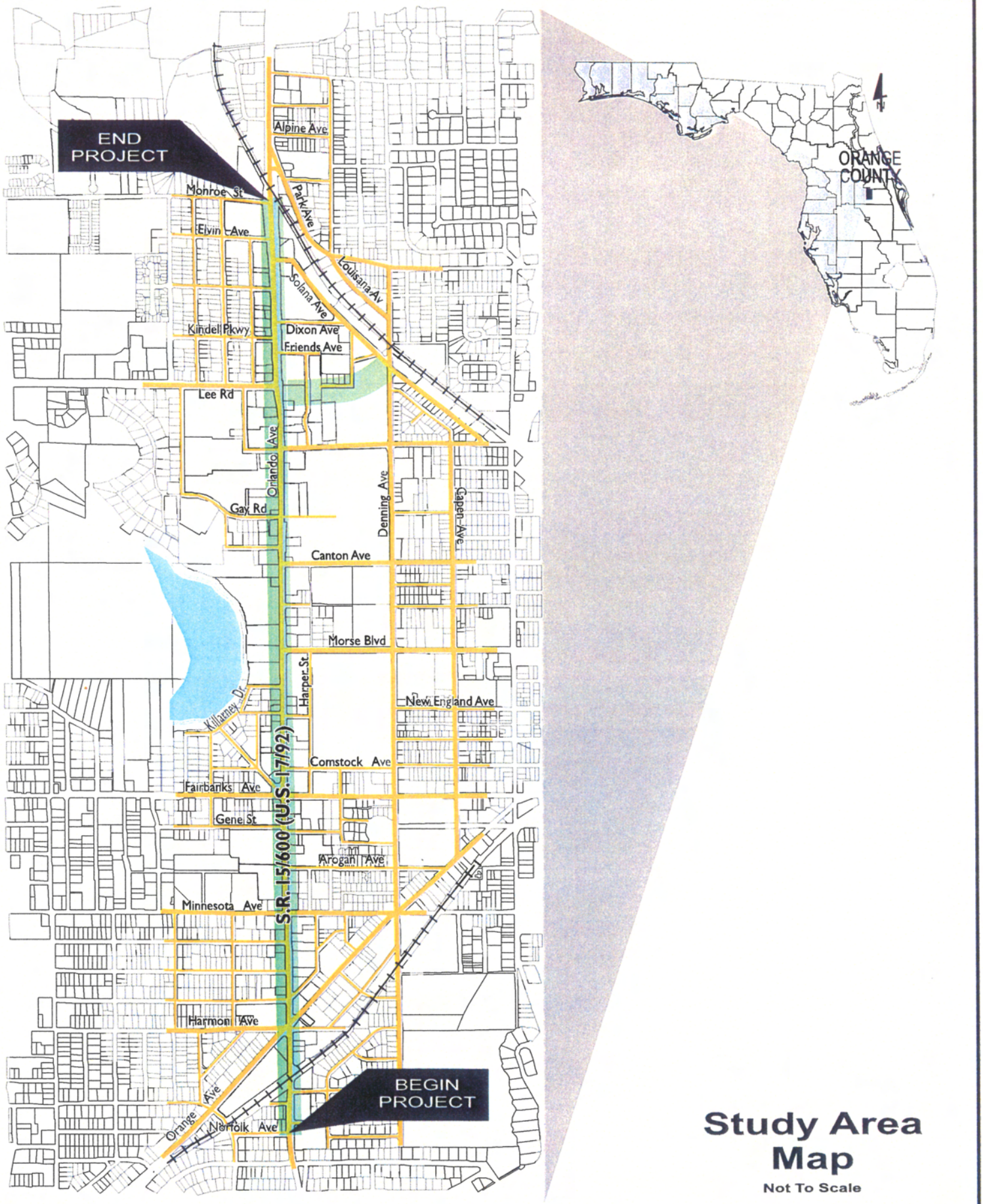
The functional classifications for the major roadway facilities located in the study area are listed below in Table 4-1. These were obtained from the report "Federal Functional Classification – District Five," prepared by FDOT District Five Planning Office which was based on the 1990 census data.

Table 4-1 Functional Classifications

Facility	Classification and Description
SR 15/600 (US 17/92)	Urban principal arterial
SR 426 (Fairbanks Avenue)	Urban minor arterial
SR 423 (Lee Road)	Urban principal arterial
Denning Drive	Urban collector
Minnesota Avenue	Urban collector

4.1.2 TYPICAL SECTIONS

The existing typical section varies along SR 15/600 (US 17/92) within the study limits. From Norfolk Avenue to Gay Road, the existing roadway is a five-lane section with two travel lanes in each direction separated by a continuous two-way center left-turn lane (see Figure 4-3). The inside travel lanes and center lane in this section are 12 feet wide while the outside travel lanes are approximately 15.5 feet wide and are designed to accommodate experienced bicyclists. An existing 4.5-foot wide concrete sidewalk is located along both sides of the existing roadway in this section. Roadway signage, utility structures and other obstructions are located between the existing right-of-way line and back of curb. The total existing right-of-way width in this section is 80 feet. Access to adjacent



SR 15/600 (US 17/92) Project Development and Environment Study
From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 4-1

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

FLORIDA DEPARTMENT OF TRANSPORTATION

	INVENTORIED	COMPLETE REVISED				
DATE	5-13-02	5-29-02				
BY	PR/BN	KGG				

INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	SECTION	SHEET NO. / OF.
US 17 US 92	SR 526 SR 600	ORANGE	75030000	1 / 2

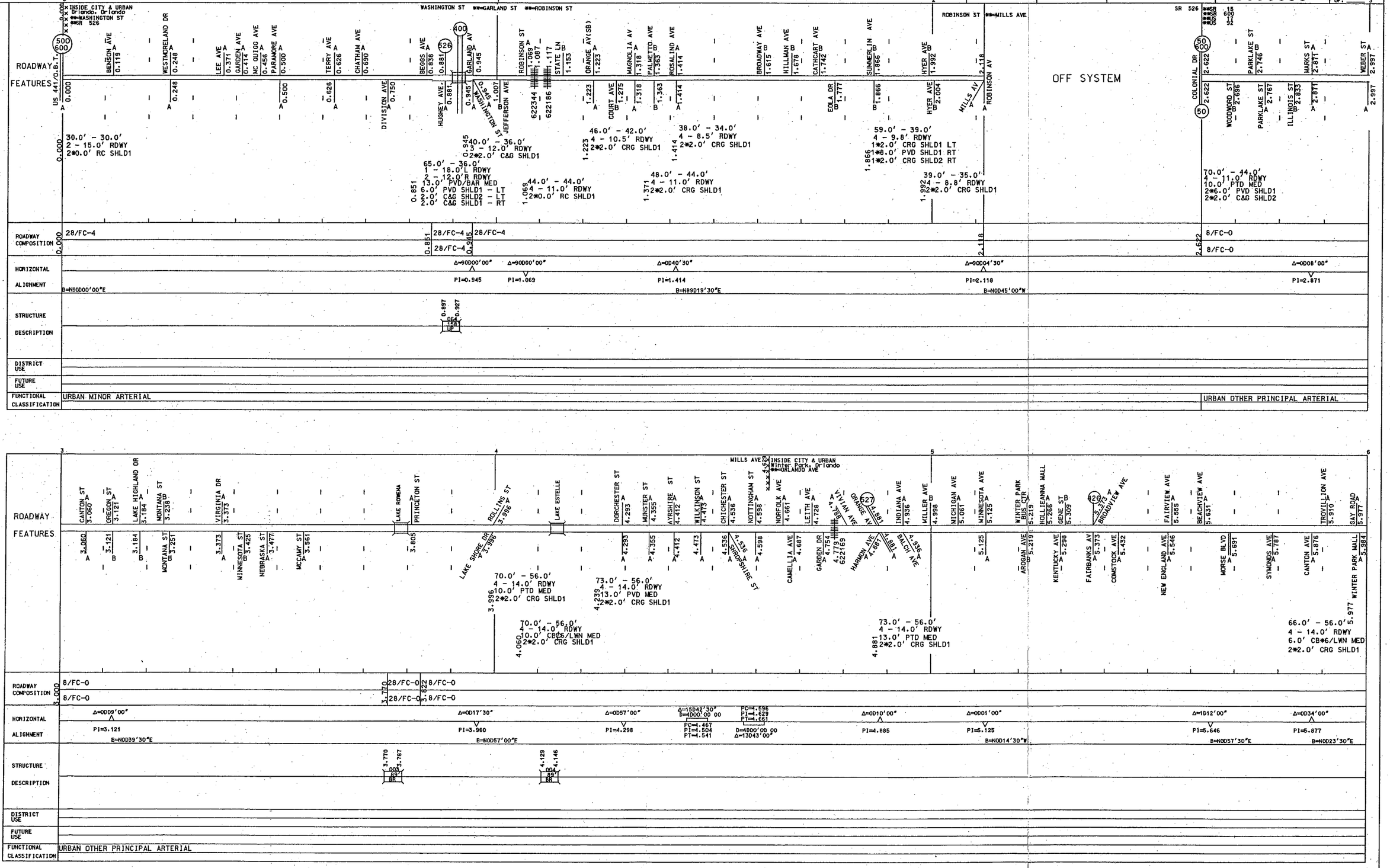


Figure 4-2

	INVENTORIED	COMPLETE REVISED				
DATE	5-13-02	5-29-02				
BY	PR/BN	KGG				

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

FLORIDA DEPARTMENT OF TRANSPORTATION

INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	SECTION	SHEET NO. / OF.
US 17 US 17	SR 15 SR 600	ORANGE	75030000	2 / 2

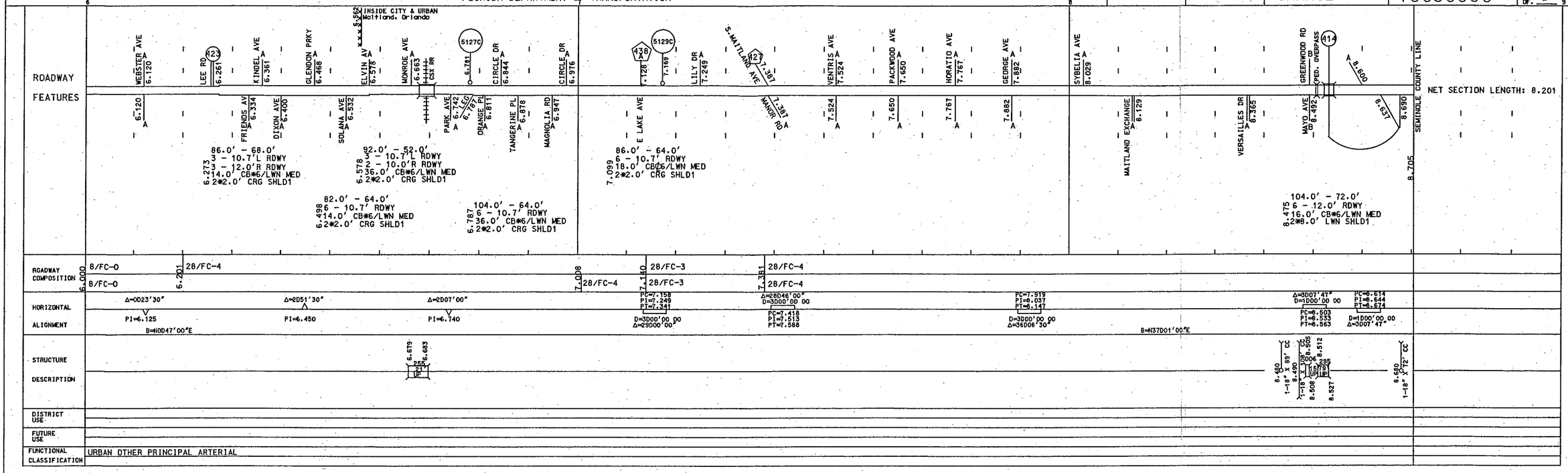
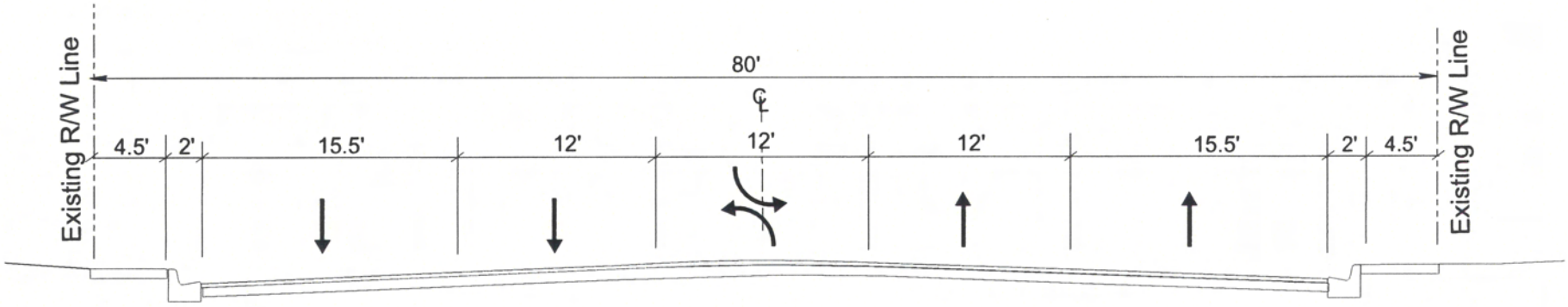


Figure 4-2 continued



Existing Typical Section
Five-Lane Urban Typical Section (Two-Way Left Turn Lane)
From Norfolk Avenue to Gay Road
Existing Posted Speed: 35 mph

properties is unrestricted in this area and there are numerous driveways and side streets that connect directly to the mainline.

From Gay Road to SR 423 (Lee Road), the existing roadway is essentially the same as the section previously described with the exception of the median treatment. In this segment, the center turn lane is replaced with a concrete median and traffic separator to allow for left turn storage lanes to be developed at the intersections of Gay Road, Webster Avenue and SR 423 (Lee Road). The total existing right-of-way width in this section remains 80 feet. Access to adjacent properties is restricted in this area due to the concrete median and traffic separator. Figure 4-4 shows the existing typical section from Gay Road to SR 423 (Lee Road).

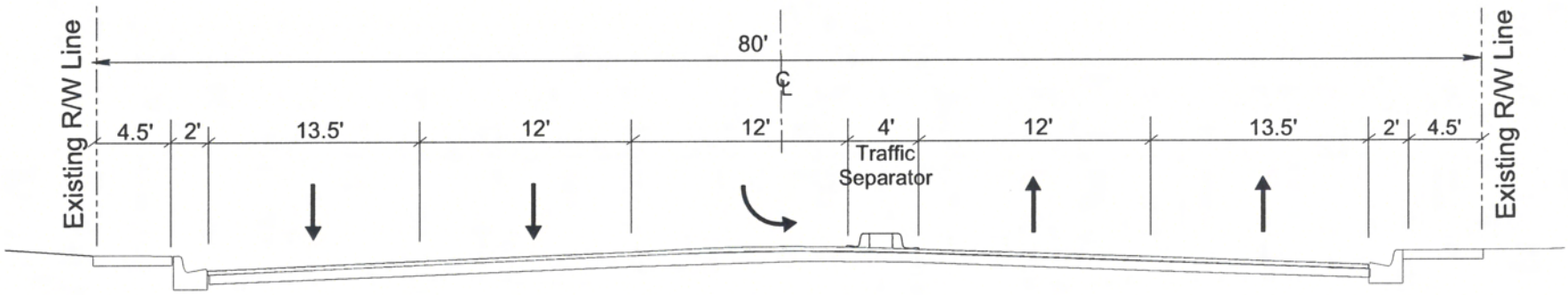
From SR 423 (Lee Road) to Monroe Street, SR 15/600 (US 17/92) is generally a six-lane divided facility (see Figure 4-5). Three (3) 11.5-foot wide travel lanes are provided in each direction separated by a raised, landscaped median that varies in dimension from 10 feet to 17.5 feet in width. A five-foot wide concrete sidewalk is provided along both sides of the existing roadway. The existing right-of-way width in this section is 106 feet. Between Solana Avenue and Monroe Street, the outside northbound travel lane is eliminated in order to accommodate the horizontal clearance at the CSX overpass. In the southbound direction, the outside travel lane is converted to an exclusive right-turn lane for westbound SR 423 (Lee Road). Access north of SR 423 (Lee Road) is restricted by the existing raised median which includes turn lanes for access and u-turn maneuvers.

4.1.3 Pedestrian, Bicycle and Public Transportation Facilities

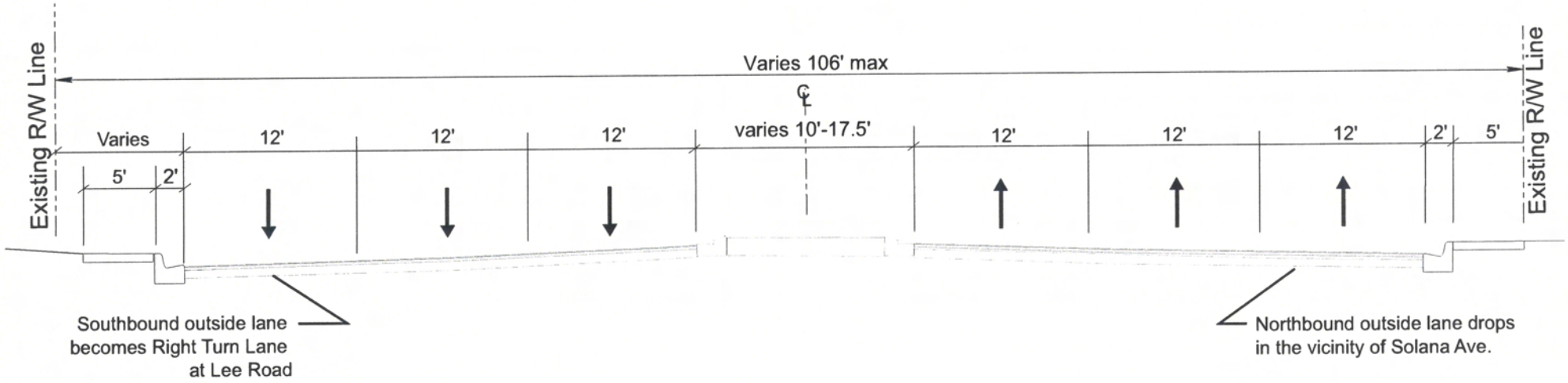
Below is a summary of existing pedestrian, bicycle and surface transit facilities located within the SR 15/600 (US 17/92) study area.

Pedestrian Facilities
Concrete sidewalks are located along both sides of the existing SR 15/600 (US 17/92) roadway. From Norfolk Avenue to Lee Road, a 4 ½ foot wide sidewalk is located flush with the existing curb line. North of Lee Road, a five foot wide sidewalk is provided.

Bicycle Facilities
There are no designated bicycle facilities along SR 15/600 (US 17/92) within the study limits. From Norfolk Avenue to Lee Road, the existing outside travel lane in both directions is 15 ½ feet wide and can accommodate experienced bicyclists.



Existing Typical Section
Four-Lane Urban Typical Section
From Gay Road to Lee Road
Existing Posted Speed: 35 mph



Existing Typical Section
Six-Lane Urban Typical Section (Raised Median)
From Lee Road to Monroe Street
Existing Posted Speed: 35 mph

Figure 4-5

Transit

The Central Florida Regional Transportation Authority, also known as Lynx, has several bus routes that operate within the study area. The following is a list of routes and corresponding descriptions as provided by Lynx. Figure 4-6 shows the Lynx route locations graphically.

Link 1	N. Orange Avenue/Altamonte Mall
Link 9	N. Orange Avenue/Rosemont
Link 14	Princeton Street
Link 16	College Park
Link 23	Winter Park/Forest City
Link 39	Fern Park/Sanford

There are twenty-one (21) bus stops within the study area. The following is a list of bus stop locations and their corresponding routes:

Links 14 and 39 – In front of Bank of America (before Chick-Fil-A); sign posted; no bench or covering; small sidewalk straight to curb.

Links 14 and 39 – In front of Burger King; sign against a light pole; small sidewalk straight to the curb.

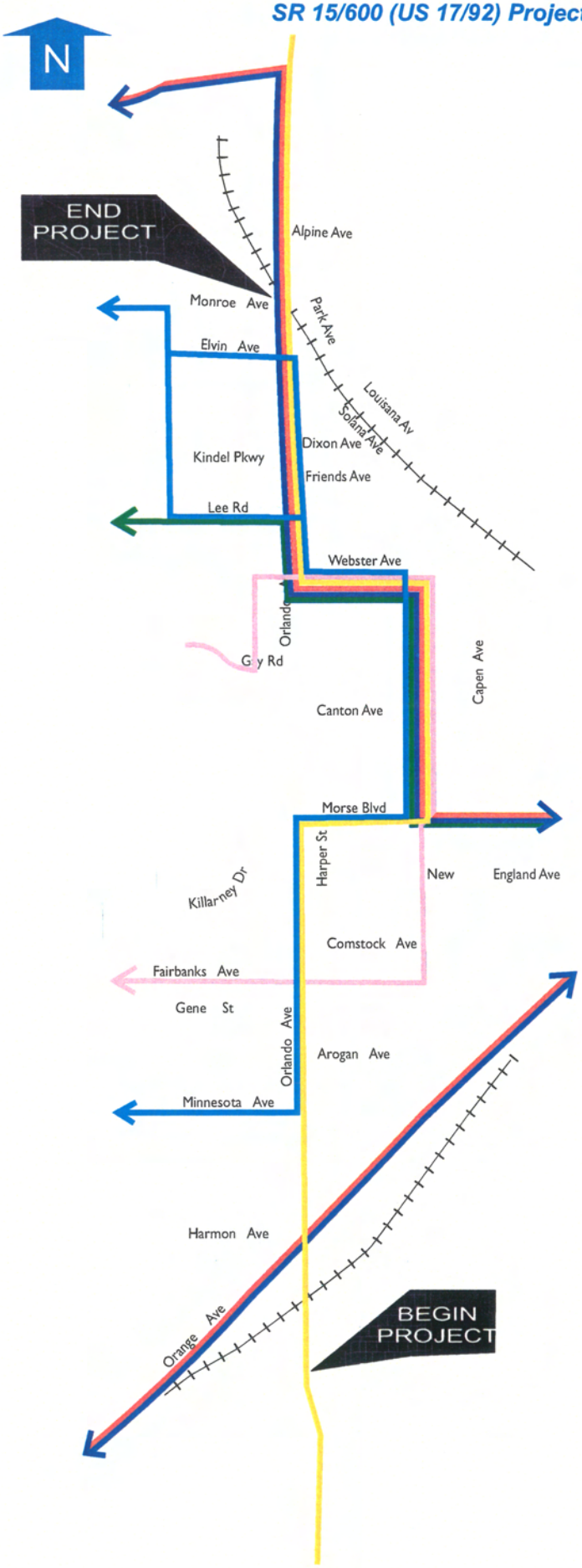
Links 14 and 39 – At Morse Boulevard (in front of the Best Western); sign posted; no bench or cover; some shade provided by the trees.

Links 1, 9, 14, 16, 23 and 39 – On Webster Avenue across from The Volvo Store and next to the Winter Park Village Shopping Center; sign posted; no bench or cover; small sidewalk straight to curb.

Links 1, 9, 14, 16, 23 and 39 – On Denning Drive, behind the Winter Park Village Shopping Center; sign posted; one covered bench; sidewalk straight to curb.

Links 1, 9, 14, 16, 23 and 39 – Denning Drive at Swoope Avenue; sign posted; one covered bench; shade is provided by trees.

Links 1, 9, 14, 16, 23 and 39 – Denning Drive across from Denning Square Apartments, behind Regal Cinema 20 (Winter Park Village); sign posted; bench (uncovered) and trash can; sidewalk straight to curb.



Lynx Transit Service

- ***Link 1*** (N. Orange Ave. / Altomonte Mall)
- ***Link 9*** (N. Orange Ave. / Rosemont)
- ***Link 14*** (N. Westmoreland Dr.)
- ***Link 16*** (College Park)
- ***Link 23*** (Winter Park / Forest City)
- ***Link 39*** (Fern Park / Sanford)

Figure 4-6

Links 1, 9, 14, 16, 23 and 39 – On Denning Drive southbound, across from Canton Avenue; sign posted; no bench or cover; sidewalk straight to curb.

Links 1, 9, 14, 16, 23 and 39 – On Denning Drive northbound; sign posted; covered bench; no sidewalk (footpath in grass strip).

Links 1, 9, 14, 16, 23 and 39 – On Denning Drive southbound; sign posted; sidewalk straight to curb; trashcan and bench; no cover.

Link 1, 9 and 39 – On SR 15/600 (US 17/92) northbound, in front of the Honda dealership; sign posted; sidewalk; no bench or cover.

Link 1, 9 and 39 – On SR 15/600 (US 17/92) northbound before railroad, in front of Sparkles Car Wash; sign posted; no benches or cover (some shade from trees); no sidewalk, just curb and gutter.

Link 1, 9 and 39 – On SR 15/600 (US 17/92) southbound at Elvin Avenue; sign posted; bench; no cover; sidewalk.

Links 1, 9, 14 and 39 – On SR 15/600 (US 17/92) southbound at Glendon Parkway; sign posted; bench; no cover; sidewalk.

Links 14 and 39 – On SR 15/600 (US 17/92) southbound at Fairview Avenue; sign posted; no bench or cover; sidewalk straight to curb.

Links 14 and 39 – On SR 15/600 (US 17/92) southbound at the Wendy's exit, before Fairbanks Avenue; sign posted; no bench or cover; sidewalk straight to curb.

Links 14 and 39 – On SR 15/600 (US 17/92) southbound across from Aragon Street at Hollieanna Shopping Center; sign posted; no bench or cover; some shade from trees; trash can (litter on ground).

Link 39 – On SR 15/600 (US 17/92) southbound, in front of Wachovia at Orange Avenue; sign posted; no bench or cover; sidewalk straight to curb.

Link 39 – On SR 15/600 (US 17/92) northbound at Garden Drive; sign posted; no bench or cover; sidewalk straight to curb.

Link 39 – On SR 15/600 (US 17/92) northbound at Balch Avenue; sign posted; bench approximately 15 feet from sign (shade from trees); sidewalk straight to curb.

Link 39 – On SR 15/600 (US 17/92) northbound, just before Minnesota Avenue; sign posted; no bench or cover; sidewalk to curb.

A majority of the bus stops along Route 39 are in front of shopping centers and commercial areas. The remaining stops are in residential areas, consisting mostly of apartment or rented living buildings. Of the 21 bus stops that are in the project study area, 13 are equipped with a sign that lists the routes. The signs are located on the embankment just outside of the sidewalks. The 4½ foot wide sidewalks are flush to the curb. They have no benches or shelters. The other 8 stops are equipped with benches. Three of those stops have a covered shelter. Along this route, there is one turning lane for buses to pull out away from traffic.

Route 39 continues onto smaller side streets that connect to SR 15/600 (US 17/92). These streets have four lanes and on-curb sidewalks. There are no areas for buses to pull away from traffic. These streets are in a residential area and directly behind a shopping center. Four of the signs are located at the point where the sidewalk meets the driveway.

There are no bicycle racks or facilities provided for cyclists on Route 39. The small width of the sidewalks makes it difficult for pedestrians and bicyclists to share. Light poles take up some areas of the sidewalk, as do newspaper stands and overgrown plant life. Litter is also a problem. Some of the stops are equipped with wastebaskets, but there is still litter on the ground.

4.1.4 RIGHT OF WAY

Generally, the existing SR 15/600 (US 17/92) corridor is centered within 80 feet of right-of-way between Norfolk Avenue and Lee Road and 106 feet of right-of-way between Lee Road and Monroe Street. The existing right-of-way was obtained from existing FDOT construction plans and right-of-way maps which are located in the District Office in DeLand, Florida.

4.1.5 HORIZONTAL ALIGNMENT

The existing SR 15/600 (US 17/92) horizontal alignment from Norfolk Avenue to Monroe Street traverses approximately 2 miles and is basically a straight tangent with no horizontal curvature. At its beginning point, Norfolk Avenue, the SR 15/600 (US 17/92) horizontal centerline is due N 0°15'30" W varying slightly to N 0°57'30" E just past Morse Boulevard. The alignment continues on that same tangent until Gay Road where it changes to N 0°23'30" E, changing again when the alignment reaches Lee Road to N 1°25'00" E. The SR 15/600 (US 17/92) horizontal alignment stays at this bearing until it reaches the Monroe Street intersection.

4.1.6 VERTICAL ALIGNMENT

The existing vertical alignment (Profile Grade) is moderately flat with longitudinal grades varying from 0.20% to the maximum of 1.37%. Since most of the profile is relatively flat, vertical curves are often not required. In areas were they are used, they vary in length from 50' to 350'.

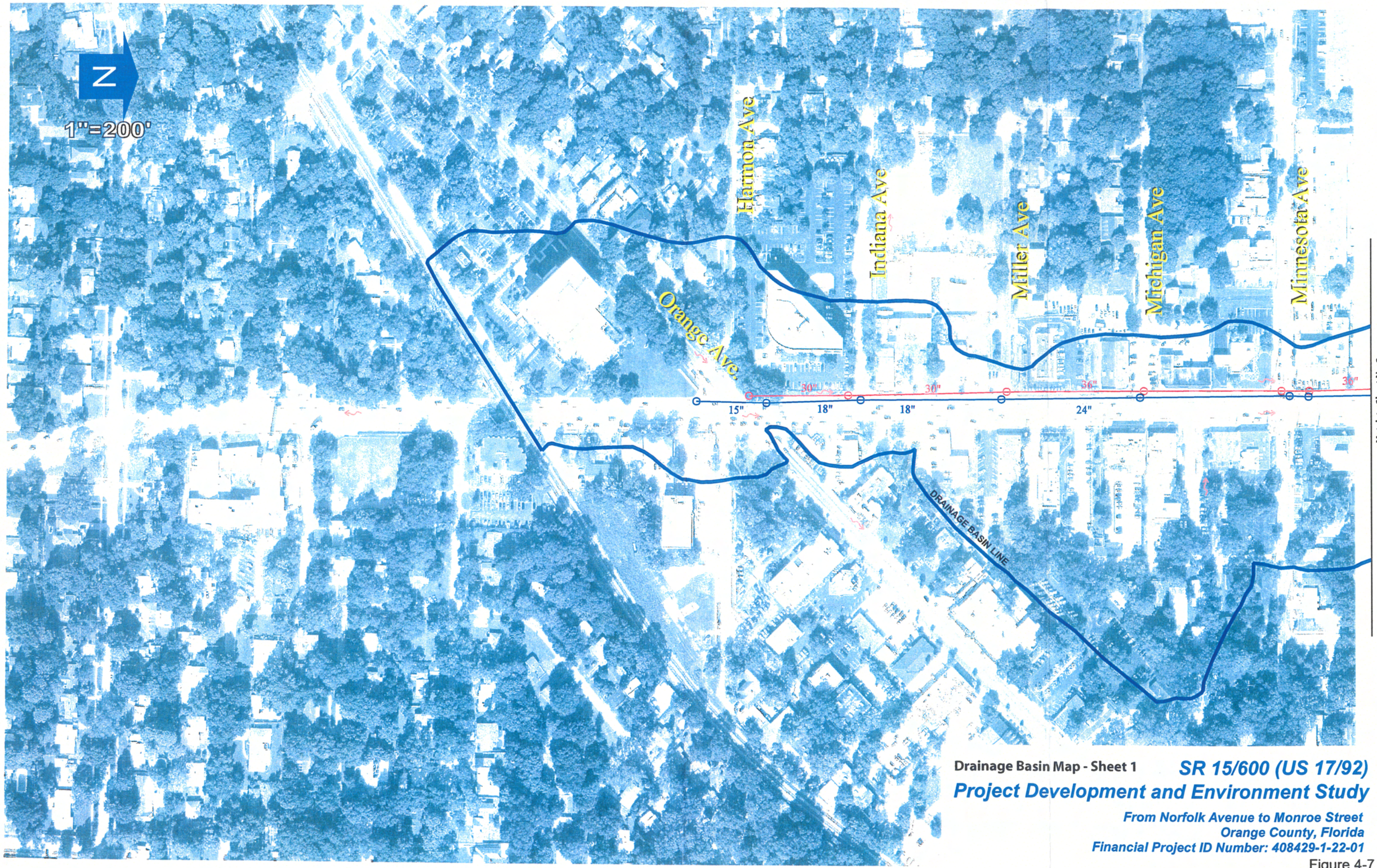
4.1.7 DRAINAGE

The SR 15/600 (US 17/92) corridor through the study area is an urban roadway section drained by curb and gutter and curb inlets. The corridor is served by two major storm sewer outfalls. Figure 4-7 shows existing Drainage Basin Features within the SR 15/600 (US 17/92) study area.

One of the outfalls runs along Peachview Avenue to Lake Killarney. This outfall consists of a 60-inch concrete culvert and serves approximately 7,350 linear feet (LF) of roadway from Ashburne Road (railroad crossing) which is one street south of Orange Avenue on southern end of project area northward to Webster Avenue. From the outfall, the system branches into dual trunk lines consisting of a 42-inch and 24-inch pipe system running southward and a 30-inch and 42-inch pipe system running northward from Peachview Avenue. The present drainage system consists of both Type 5 and Type 6 FDOT standard curb inlets and dual trunk lines that are interconnected as a result of roadway widening efforts circa 1965. The adjacent properties along this corridor are primarily commercial with high runoff potential and no existing stormwater treatment or detention areas.

The area of exception is the recently redeveloped Winter Park Village area which is approximately 40 acres in size. The drainage divide for the SR 15/600 (US 17/92) system meanders through this development with approximately 17.5 acres of the area draining into the SR 15/600 (US 17/92) system and the rest draining to the Denning Drive system. The drainage system for the Village area includes an interconnected system of exfiltration systems which are designed to treat 1.5 inches of runoff.

An analysis of the existing SR 15/600 (US 17/92) storm sewer system has been conducted and the findings are that the system is undersized for the standard FDOT rational 3-year criteria. The gutter spread has also been analyzed and indicates that the curb inlet spacing is deficient. Although the analyses indicate the drainage system is less than desirable, City and FDOT officials have stated that there are no chronic flooding problems along this corridor.



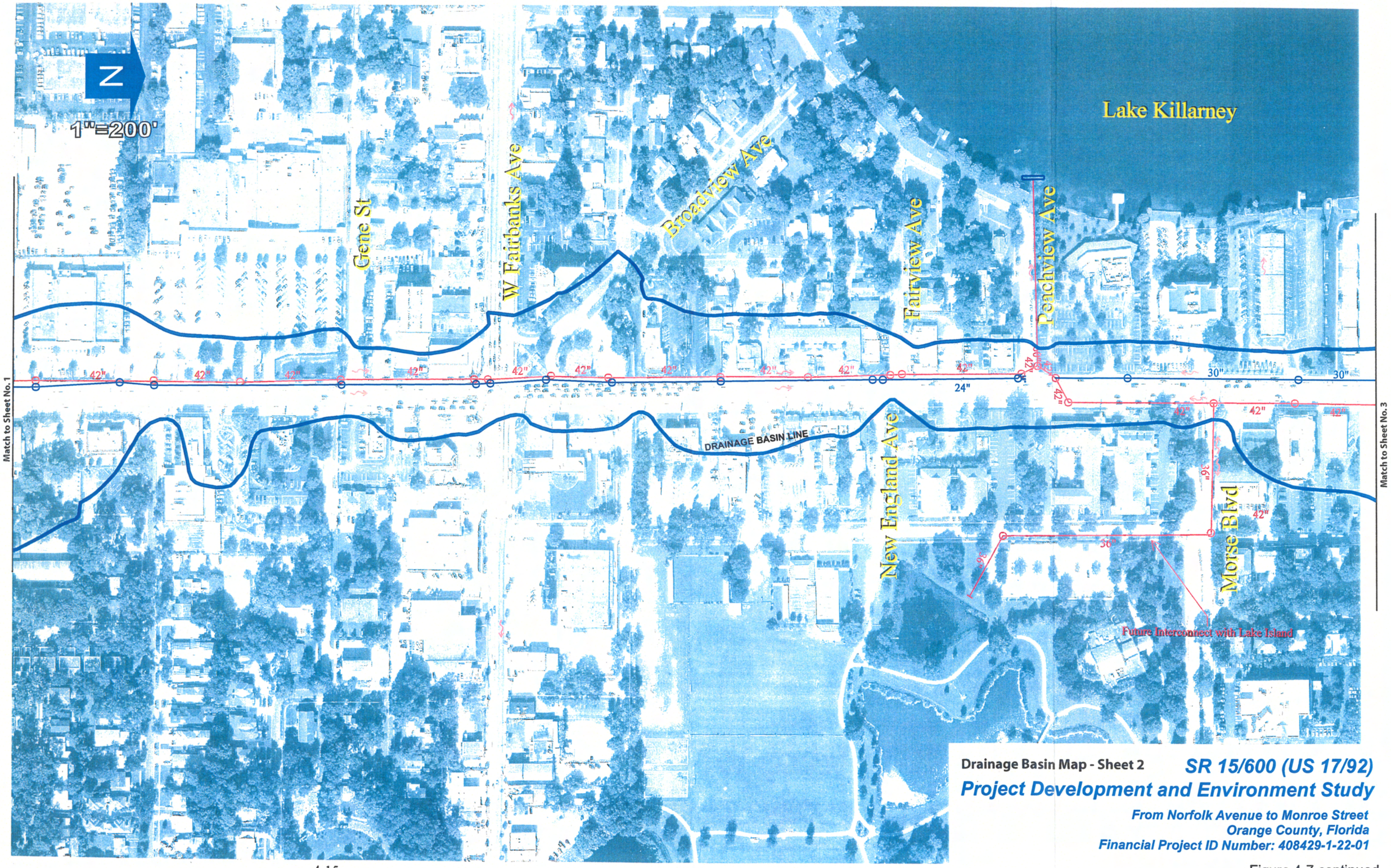
Drainage Basin Map - Sheet 1

SR 15/600 (US 17/92)

Project Development and Environment Study

From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 4-7



Drainage Basin Map - Sheet 2

SR 15/600 (US 17/92)

Project Development and Environment Study

From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 4-7 continued

N

1"=200'

Jean Ave

Clay Rd

W Webster Rd

Lee Rd

Kindell Ave.

Symonds Ave

Canton Ave

Friends Ave.

DRAINAGE BASIN LINE

Match to Sheet No. 2

Match to Sheet No. 4

24" 24" 24" 24" 18" 18" 18" 15" 24" 24" 24"

42" 42" 36" 36" 36" 24" 18" 18" 18" 18"

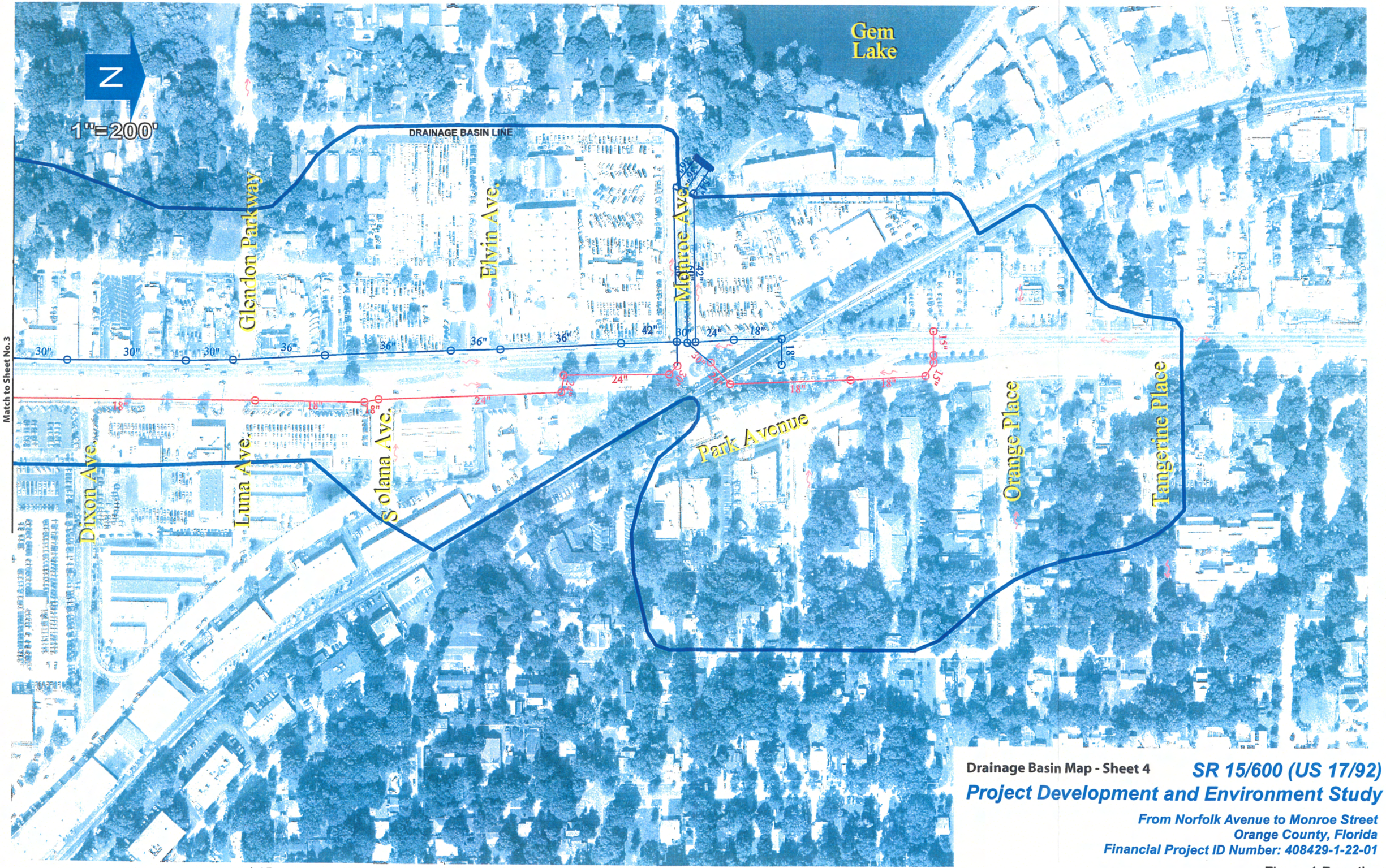
Drainage Basin Map - Sheet 3

SR 15/600 (US 17/92)

Project Development and Environment Study

From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 4-7 continued



Drainage Basin Map - Sheet 4

SR 15/600 (US 17/92)

Project Development and Environment Study

From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 4-7 continued

In 2003, the City of Winter Park completed construction of a piped interconnect between Lake Island (just to the east of SR 15/600 (US 17/92) and Lake Killarney. This interconnect ties into a section of the existing storm sewer along SR 15/600 (US 17/92) and is designed to have minimal effect on the performance of the SR 15/600 (US 17/92) drainage. This interconnect provides benefits of stormwater treatment for SR 15/600 (US 17/92) and positive outfall for Lake Island.

The second storm sewer outfall within the project area runs along Monroe Street to Lake Gem and Park Lake. This outfall consists of three outfall pipes, two 60-inch and a 42-inch, and serves approximately 3,650 LF of roadway from Webster Avenue to Tangerine Place at the north end of the project area. From the outfall, the system branches into two 42-inch pipes running southward and a 24-inch and 30-inch running northward. As with the southern drainage system, this system is the product of retrofits from previous roadway improvements (widening projects). Additionally, inlets were added and the outfall piping was upgraded during a retrofit project in the year 2000 conducted by FDOT. It is understood that a future phase of work in this area will be to construct a stormwater treatment system at the outfall in the lake which could include a trash rack, skimmer, and/or a CDS unit and to upgrade the last section of piping at the outfall. This retrofit project is being conducted in order to relieve chronic flooding of SR 15/600 (US 17/92) under the CSX railroad bridge over the existing roadway. FDOT and City officials have indicated that flooding has become less frequent since construction of the first phase of this project.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) Number 120179-0225C dated August 5, 1986 and Number 120122-0005C dated February 4, 1983, there is one area along the proposed study corridor that is within the 100 year floodplain. This floodplain area is associated with Lake Killarney and lies within Zone AE, an area where the estimated 100 year flood elevation has been determined 85 feet, NGVD.

Due to the location of this floodplain within the study area and considering the proposed improvements recommended in this study, it has been determined that this project will have no floodplain encroachments.

4.1.8 GEOTECHNICAL DATA

A preliminary geotechnical investigation has been performed for the SR 15/600 (US 17/92) Study. The results of this investigation are documented in the ***Report of Preliminary Geotechnical Investigation, State Road 15/600 (US Highway 17/92), September 2002***. The following information was compiled from the report.

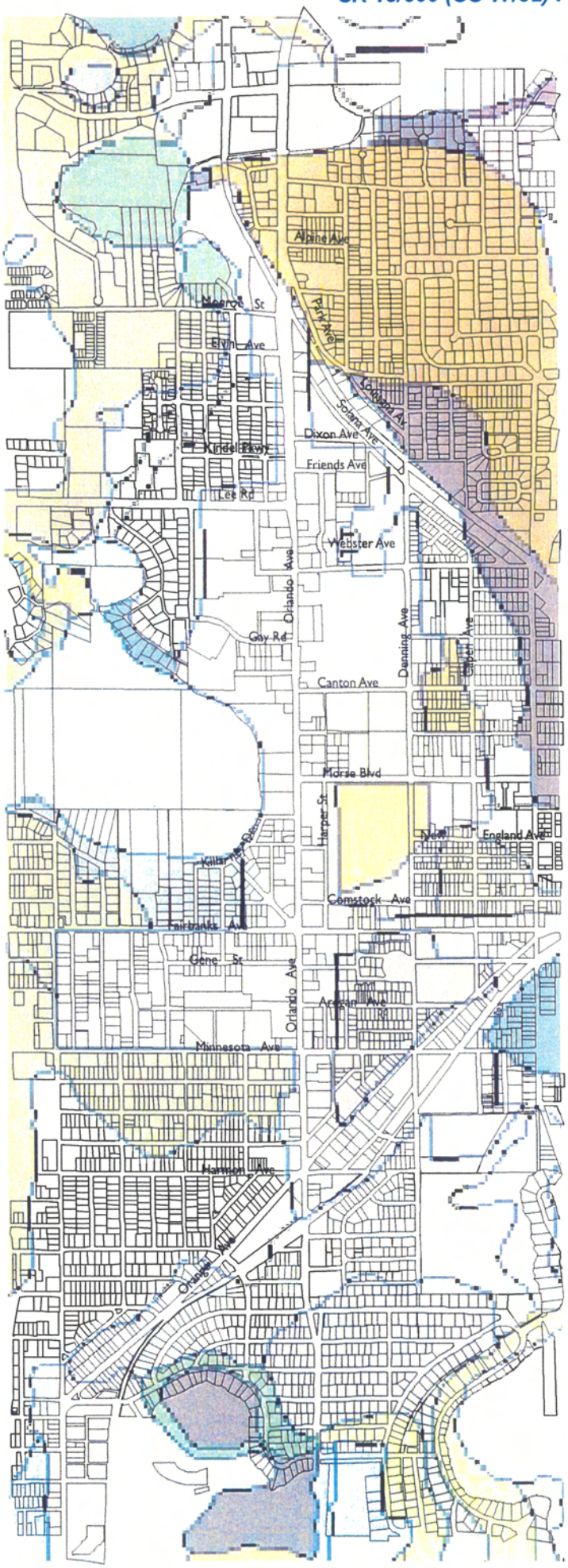
According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey of Orange County, Florida, soils at the subject site are primarily classified as Urban Land-Tavares-Pomello. The USDA Orange County Area Soil Survey of the project location is shown on Figure 4-8. The SCS defines this soil map unit as follows:

Urban Land-Tavares-Pomello: Nearly level to gently sloping, moderately well drained soils that are sandy throughout, some with organic stained subsoil at a depth of 30 to 50 inches. The project area has been modified for urban use.

Within the study area, unconsolidated sand and shell ranging in age from Pleistocene to Recent extend to a depth of 50 feet below surface grade and serve as the reservoir for non-artesian water. According to Barraclough (1962), these sediments lie un-conformably over Pliocene or Late Miocene deposits of sticky blue clay beds which may extend down to approximately 60 feet below surface grade. These Pleistocene and Late Miocene deposits lie un-conformably over the Avon Park Limestone and serve as the confining unit for the artesian aquifer (Floridan Aquifer) contained in the Avon Park Limestone. Both the Hawthorn Group, which un-conformably overlies the Ocala Group, and the Ocala Group, which un-conformably overlies the Avon Park Limestone, have been thinned by erosion along the flanks of, and removed from the crest of, a structural high in the Sanford area known as the Sanford high. The Avon Park Limestone is a granular to chalky limestone, ranging from 450 feet to 550 feet in thickness, and has been irregularly dolimitized upon deposition. The Avon Park Limestone conformably overlies the Lake City Limestone, which averages 400 feet in thickness in Orange County.

Two (2) general hydrostratigraphic divisions can be found in Orange County. The two (2) divisions include a non-artesian aquifer and the Floridan Aquifer. The non-artesian aquifer is composed of sand beds of the Pleistocene and Recent age. The non-artesian aquifer is recharged locally by precipitation on the land surface, which percolates downward. The Floridan Aquifer is composed of limestone and dolomite of Eocene age. Water is confined in the rocks of Eocene age by clay beds in the

Soil Types



- No classification
- Arents, nearly level
- Archbold fine sand, 0 to 5 percent slopes
- Basinger fine sand, depressional
- Candler fine sand, 0 to 5 percent slopes
- Candler fine sand, 5 to 12 percent slopes
- Candler-Apopka fine sands, 5 to 12 percent slopes
- Candler-Urban land complex, 0 to 5 percent slopes
- Candler-Urban land complex, 5 to 12 percent slopes
- Canova muck
- Chobee fine sandy loam, frequently flooded
- Floridana and Chobee soils, frequently flooded
- Emeralda and Holopaw fine sands, frequently flooded
- Felda fine sand
- Felda fine sand, occasionally flooded
- Felda fine sand, frequently flooded
- Floridana fine sand, frequently flooded
- Floridana mucky fine sand, depressional
- Gator muck
- Hontoon muck
- Immokalee fine sand
- Lake fine sand, 0 to 5 percent slopes
- Lochloosa fine sand
- Malabar fine sand
- Millhopper-Urban land complex, 0 to 5 percent slopes
- Okeelanta muck
- Ona fine sand
- Ona-Urban land complex
- Floralhome fine sand, 0 to 5 percent slopes
- Floralhome-Urban land complex, 0 to 5 percent slopes
- Pineda fine sand
- Pinellas fine sand
- Pits
- Pomello fine sand, 0 to 5 percent slopes
- Pomello-Urban land complex, 0 to 5 percent slopes
- Pompano fine sand
- St. Johns fine sand
- St. Lucie fine sand, 0 to 5 percent slopes
- St. Lucie-Urban land complex, 0 to 5 percent slopes
- Samsula muck
- Samsula-Hontoon-Basinger association, depressional
- Sanibel muck
- Soffner fine sand
- Smyrna fine sand
- Smyrna Urban land complex
- Tavares fine sand, 0 to 5 percent slopes
- Tavares-Millhopper fine sand, 0 to 5 percent slopes
- Tavares-Urban land complex, 0 to 5 percent slopes
- Terra Ceia muck
- Urban land
- Wabasso fine sand
- Wabasso-Urban land complex
- Wauberg fine sand
- Zolfo fine sand
- Zolfo-Urban land complex
- Water

Figure 4-8

deposits of Miocene or Pliocene age. The Floridan Aquifer furnishes sufficient quantities of water for municipal, agricultural, industrial, and commercial needs in Orange County. The unconfined water table in the non-artesian aquifer system represents a subdued expression of the surface topography, whereas the Floridan Aquifer system is confined under pressure. Each is classified as a G-II aquifer according to Florida Administrative Code (FAC) 62-3.

4.1.9 CRASH DATA

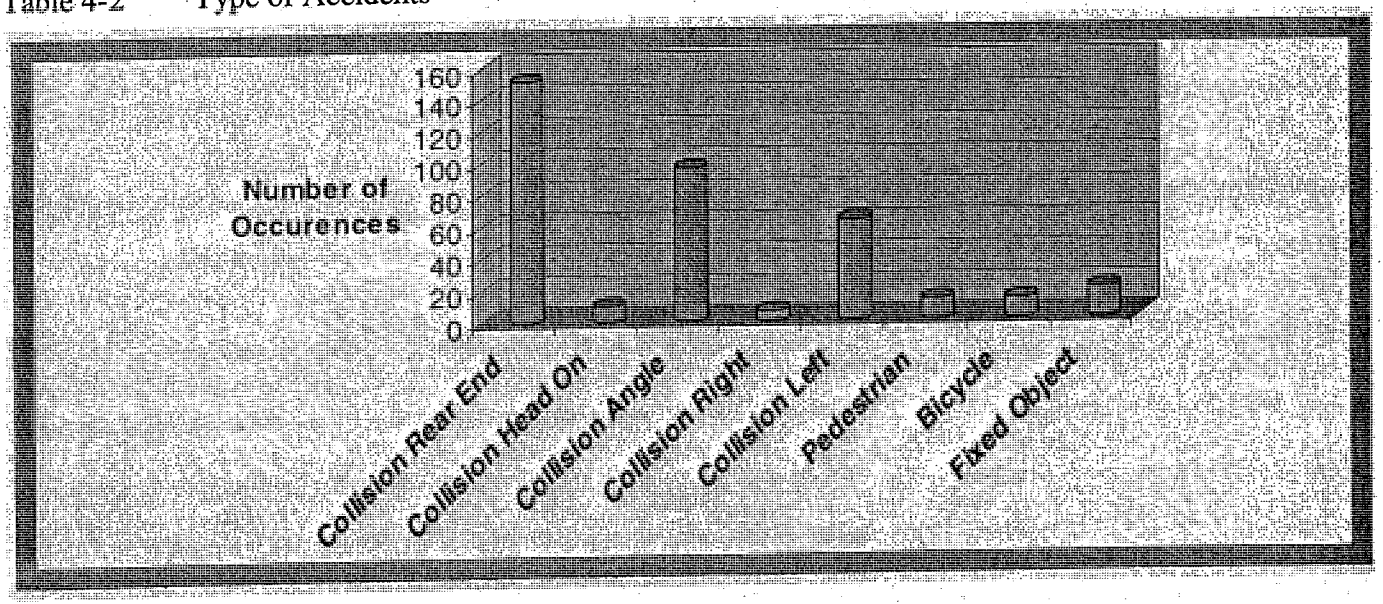
The accident data collected for SR 15/600 (US 17/92) covers the area from Camellia Avenue (MP 4.687) north to Tangerine Place (MP 6.878). This data was collected using the FDOT accident database for the previous five years that were available, the years 1995 through 1999.

The accident data was organized into the following categories:

- Type of Accident
- Accident Time of Day
- Accident Locations
- Accident Fatalities and Injuries
- Estimate of Economic Loss

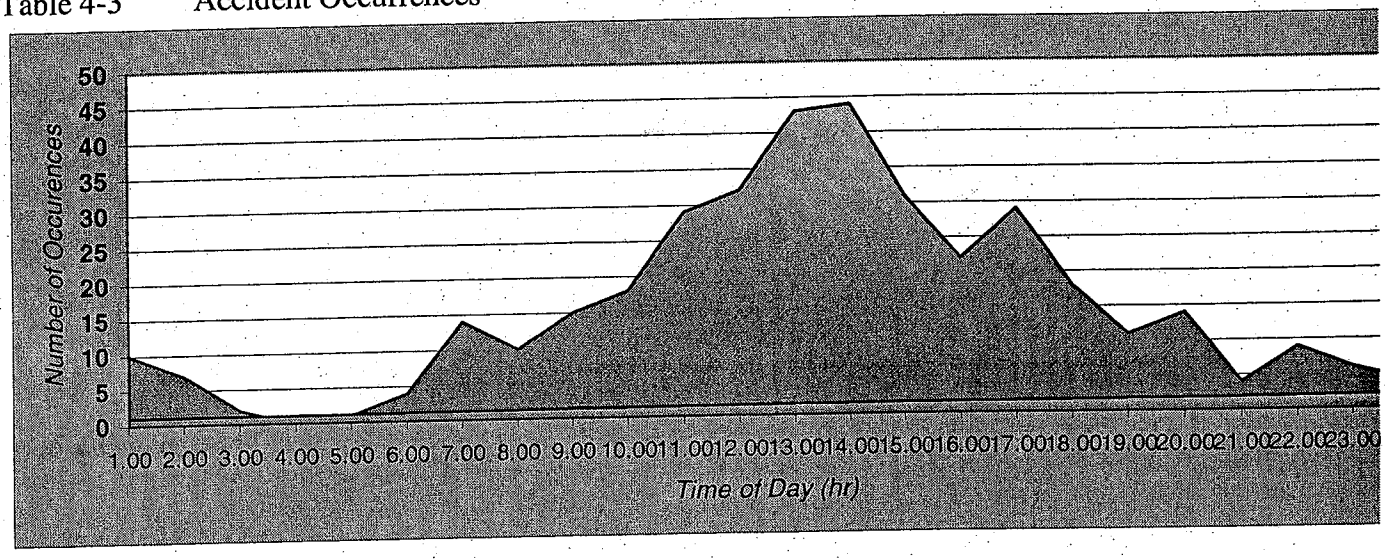
A total of 369 accidents were reported during the five-year reporting period. The accident data was analyzed to identify the type of accidents occurring along the study corridor. The following Table 4-2 summarizes the type of accidents along SR 15/600 (US 17/92).

Table 4-2 Type of Accidents



The accident data also revealed a trend that indicates most of the accidents were occurring during the afternoon period following lunch. This can be seen on Table 4-3, Accident Occurrences along SR 15/600 (US 17/92).

Table 4-3 Accident Occurrences



Utilizing a straight line diagram of the project area all of the accidents in the corridor were marked to specify their location. The accidents that occurred at the seven signalized intersections were analyzed in the following Table 4-4.

Table 4-4 Accidents Per Intersection

Signalized Intersections	1995	1996	1997	1998	1999	Total (5 Year)
Orange Avenue/Harmon Avenue (MP 4.881)	4	10	4	9	7	34
Minnesota Avenue (MP 5.125)	7	9	15	5	7	43
Fairbanks Avenue (MP 5.373)	13	14	9	5	15	56
Morse Boulevard (MP 5.691)	6	3	1	2	5	17
Webster Avenue (MP 6.120)	7	11	9	13	10	50
Lee Road (MP 6.261)	2	4	5	3	8	22
Park Avenue (MP 6.742)	3	5	7	1	2	18

('500' south and north of intersection)

The SR 15 corridor during the five year accident analysis showed a high percentage of injuries with few fatalities, as shown in the following Table 4-5.

Table 4-5 SR 15/600 (US 17/92) Injuries and Fatalities, Years 1995 through 1999

Fatalities		Injuries	
1995	0	1995	72
1996	1	1996	88
1997	2	1997	94
1998	0	1998	64
1999	0	1999	73
Total Fatalities	3	Total Injuries	391

The economic loss that is contributed to the accidents during the five year study period is shown in the following Table 4-6.

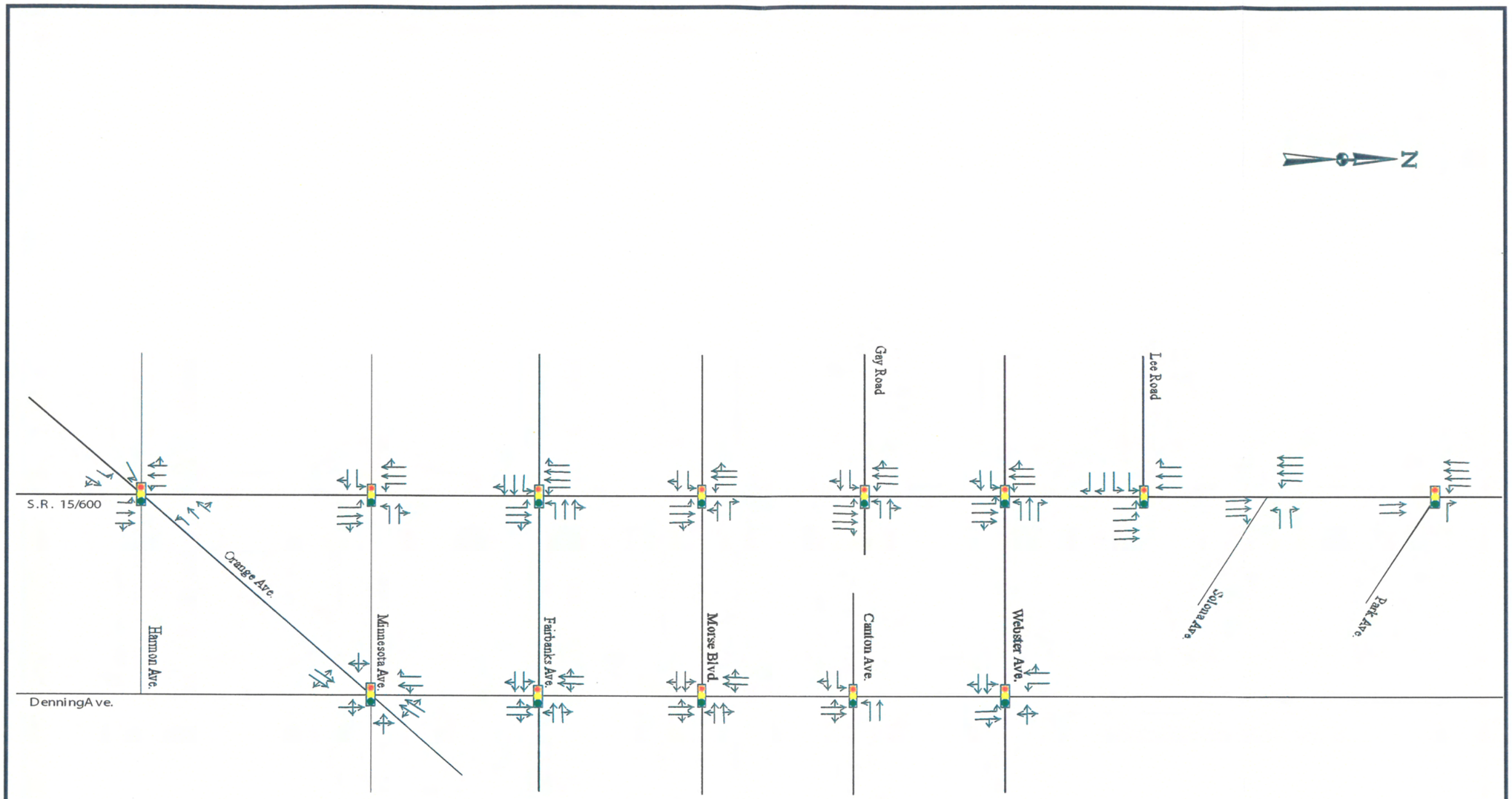
Table 4-6 SR 15/600 (US 17/92) Economic Loss, Years 1995 through 1999

Estimate of Economic Loss	
Year	Economic Loss
1995	$3,650,305
1996	$4,991,300
1997	$3,674,000
1998	$3,576,000
1999	$4,619,700

4.1.10 INTERSECTIONS AND SIGNALIZATION

Figure 4-9 shows the existing functional geometry for the major signalized intersections located along SR 15/600 (US 17/92) and Denning Drive. The signalized intersections along SR 15/600 (US 17/92) within the study area include:

- SR 15/600 (US 17/92) at Orange Avenue (SR 527) (Signalized)
- SR 15/600 (US 17/92) at Minnesota Avenue (Signalized)
- SR 15/600 (US 17/92) at Fairbanks Avenue (SR 426) (Signalized)
- SR 15/600 (US 17/92) at Morse Boulevard (Signalized)
- SR 15/600 (US 17/92) at Gay Road (Signalized)
- SR 15/600 (US 17/92) at Webster Avenue (Signalized)
- SR 15/600 (US 17/92) at Lee Road (SR 423) (Signalized)
- SR 15/600 (US 17/92) at Park Avenue (Signalized)



Year 2001 Existing Geometry
S R 600/15 (US 17/92)
Norfolk Ave. To Monroe Ave.

The existing intersection geometry plays a vital role in assessing the existing intersection level of service (LOS). The existing geometry will be considered as one of the factors in determining potential intersection improvements to accommodate the travel demand.

4.1.11 LIGHTING

Street lighting is provided continuously along the east and west side of SR 15/600 (US 17/92). These facilities consist of single Cobra Head style fixtures, high-pressure sodium, mounted on a concrete square pole. The poles spacing varies in distance of 150' to 500'. North of Lee Road this same type of lighting fixture is mounted on round wooden poles.

4.1.12 UTILITIES AND RAILROADS

The following information describes, in general terms, the existing utilities and railroad facilities within the study area. Aerial maps showing existing utility locations are located in the project file.

City of Winter Park Utilities

The City of Winter Park has a system of potable water mains, wastewater force mains and gravity sewer lines that lie within the SR 15/600 (US 17/92) right-of-way. The City of Winter Park system ends south of Monroe Street, at which point the City of Maitland utility system provides service.

Potable Water: The City's potable water lines vary from 2 to 12 inches in diameter and are identified on the utilities exhibit package. Generally, a 12 inch diameter main is located on the east side of the right-of-way from the south project limit to Trovillion Avenue. From Trovillion to Lee Road, the main is located on the west side of SR 15/600 (US 17/92) corridor. Form Lee Road north, the Winter Park system continues north as an 8 inch main to Monroe Street. Depending upon location, the water main materials include galvanized steel, cast iron, asbestos cement and PVC. The City of Winter Park also has an inter-connection with the City of Maitland water system at their 6-inch ductile iron water main on Park Avenue.

Sanitary Sewer: Within the SR 15/600 (US 17/92) corridor, the City of Winter Park gravity sanitary sewer system consists of a combination of PVC and vitrified clay pipes that vary in size from 6 to 15 inches in diameter. Generally, an 8 inch gravity main exists on the east side of the corridor from the south project limit to Fairbanks Avenue. A 12 inch main crosses the corridor at Fairbanks Avenue, and an 8 inch main runs along the east right-of-way from New England to Symonds Avenue. The

balance of the City's gravity sewer collection system consists of periodic crossings or lines that extend near the edge of right-of-way. Along the SR 15/600 (US 17/92) project corridor, the City of Winter Park does not have any City-operated lift stations. Instead, private lift stations pump into 4-inch cast iron force mains, and discharge into the City of Winter Park gravity sewer collection system.

Planned Improvements: At this time, the City of Winter Park does not have plans to upgrade any of their utility lines or other system facilities in the immediate corridor area.

City of Maitland Utilities

The City of Maitland has a system of potable water mains, wastewater force mains and gravity sewer lines within the SR 15/600 (US 17/92) right-of-way. As noted, the City of Maitland utility system provides service from Monroe Street to and beyond the north project study limit.

Potable Water: The City of Maitland potable water system consists of mains that vary in size from a 2-inch diameter PVC line starting at Elvin Avenue to an 8-inch diameter ductile iron main continuing north along the west side of SR 15/600 (US 17/92). The City of Maitland system is interconnected with the City of Winter Park's system via a set of 4 and 6-inch cast and ductile iron water mains that cross SR 15/600 (US 17/92) north and south of the CSX Railroad overpass.

Sanitary Sewer: The City of Maitland sanitary sewer system begins at the intersection of Monroe Street and SR 15/600 (US 17/92). The system consists of a gravity main that discharges into a recently upgraded lift station at the southwest corner of the northern CSX Railroad crossing of SR 15/600 (US 17/92). From the lift station, a force main extends northwest along the south side of the railroad right-of-way, and then crosses the track and runs along the east edge of the rail corridor. Near the north project limit, a separate gravity sewer system commences on the west side of SR 15/600 (US 17/92) at Tangerine Place, and flows north towards a lift station system.

Planned Improvements: The City of Maitland does not have any plans, at this time, to upgrade their water or sanitary sewer system in the area.

TECO (Peoples Gas)

TECO has a 4-inch diameter steel gas main on the east side of SR 15/600 (US 17/92) from Camellia Avenue to Orange Avenue. At Orange Avenue the 4-inch steel gas main crosses to the west side of SR 15/600 (US 17/92) to West New England Avenue, at which point it connects to a 2-inch steel gas main to Lee Road. The 2-inch gas main runs parallel to SR 15/600

(US 17/92) on the east side of Benjamin Avenue, from Lee Road to Elvin Avenue. The gas main crosses to the east side of SR 15/600 (US 17/92) at Elvin Avenue and continues north as a 2-inch steel line and, subsequently, a 2-inch diameter plastic line. At this time, there are no plans to upgrade the system.

Progress Energy (formerly Florida Power)
Progress Energy, formerly Florida Power, has a system of aerial and underground, primary and secondary, power lines along both sides of the SR 15/600 (US 17/92) right-of-way. Progress Energy also owns and operates a transformer sub-station located on the southeast corner of SR 15/600 (US 17/92) and Canton Avenue. At this time, Progress Energy does not have any plans to upgrade or modify the existing pole and power line system.

Brighthouse Networks (formerly Time Warner Communications)
Brighthouse Networks has aerial cable lines along the west side of the SR 15/600 (US 17/92) right-of-way between Harmon Avenue and Gay Road. At Lee Road, the aerial cables are located along both sides of SR 15/600 (US 17/92) and continue north to Glendon Parkway. At Glendon Parkway, the aerial cable continues along the west side of SR 15/600 (US 17/92) only, north to Monroe Street. At Monroe Street, the Brighthouse cable converts to an underground line running below the northern CSX railroad crossing. North of the CSX railroad crossing, the lines are aerial and continue north along the west side of SR 15/600 (US 17/92). Brighthouse does not have any immediate plans for additional installations or improvements within the project area at this time.

Bellsouth
Bellsouth has an aerial fiber optic cable on the west side of SR 15/600 (US 17/92) from Minnesota Avenue to Canton Avenue. The aerial fiber optic cable crosses SR 15/600 (US 17/92) underground from west to east in a 4-inch diameter duct at West Morse Boulevard and at West Canton Avenue, where the system continues underground to the east. Bellsouth service along the SR 15/600 (US 17/92) corridor is based on direct service orders. At this time, there are no plans to upgrade the system.

Sprint
Sprint currently has a conduit and manhole system containing multiple cables; buried and aerial copper cables; and, buried fiber optic cables within the project area. The facilities are generally located on the east side of SR 15/600 (US 17/92) from the south project limit north to Fairbanks Avenue, on the west side from New England Avenue to Gay Road, and again on the east side from N. of Lee Road to the CSX Railroad bridge crossing. At this time, Sprint has no plans for improvements in the study area.

Sprint Metropolitan Networks
Sprint Metropolitan Networks is located within the Sprint Local duct and manhole system on the south side of Orange Avenue across the SR 15/600 (US 17/92) right-of-way. At this time there are no plans for upgrades to the system.

Level (3) Communications
The Level 3 Communications system consists of a twenty line, 13-inch HDPE pipe conduit. The Level 3 duct bank runs on the north side of Orange Avenue crossing SR 15/600 (US 17/92). The duct bank also nears SR 15/600 (US 17/92) at Park Avenue, where the duct bank runs along the south side of Park Avenue, turning and heading north along the east side of SR 15/600 (US 17/92) at the intersection of Park Avenue and SR 15/600 (US 17/92). Adelphia Business Solutions also is within the Level 3 duct bank on Park Avenue and north along SR 15/600 (US 17/92). There are currently no plans for improvements to this duct bank.

Adelphia Business Solutions
Adelphia Business Solutions is located within the Level 3 Communications duct bank system on Park Avenue, following the Level 3 system north along the east side of SR 15/600 (US 17/92). Adelphia Business Solutions has no plans at this time to upgrade their system.

Williams Communications
Williams Communications has a manhole and 3-sleeve conduit system running along the CSX railroad right-of-way. Along the northern CSX railroad crossing the conduit system runs underground across SR 15/600 (US 17/92) from east to west and then along the railroad right-of-way. At this time, Williams Communications does not have any plans for upgrades to this system.

Epik Communications
Communications is located in the same duct bank with Williams Communications in a 3-sleeve conduit system. The conduit system is located within the CSX Railroad right-of-way. Epik Communications is dependent on Williams Communications for upgrades to their system. At this time, there are no proposed upgrades to the Williams Communication or Epik Communication systems.

MCI Worldcom
MCI Worldcom has telecommunication lines along the north and south sides of the southern CSX Railroad crossing right-of-way within the project area. MCI Worldcom lines follow the CSX Railroad track within its right-of-way through Winter Park. The lines also cross the project corridor at the northern CSX crossing, where the lines continue

underground, crossing from the east side of SR 15/600 (US 17/92) to the west side and then following the CSX railroad right-of-way. MCI Worldcom does not have any plans at this time for changes along this route.

AT&T Communications
AT&T has a high capacity (Jacksonville-Orlando) fiber optic cable housed in two, 2-inch diameter PVC conduit systems, with associated concrete manholes, along the south side of Orange Avenue. At this time, AT&T has no plans for any capital improvements to this route.

AT&T Local Network Services
AT&T Local Network Services facilities consist of an aerial run on the west side of the SR 15/600 (US 17/92) right-of-way between Gay Road and Indiana Avenue. Their facilities also include two buried extensions across the SR 15/600 (US 17/92) right-of-way located at the Canton Avenue and Morse Boulevard intersections. At this time, there are no plans for capital improvements or relocation of their facilities.

Florida Power Corporation –Transmission
Florida Power - Transmission has two main aerial crossings over SR 15/600 (US 17/92). One crossing is at Fairbanks Avenue and the other crossing extends west from the substation, west of Canton Avenue, to Trovillion Avenue. The line coming out of the substation is a WO 69kV line. At this time, Florida Power - Transmission Division does not have any plans for improvements.

FPL FiberNet
FPL FiberNet crosses SR 15/600 (US 17/92) at two locations along the study route. One crossing, containing four 13 HDPE lines, is along the south right-of-way of Camellia Road and then turns and heads south along the west SR 15/600 (US 17/92) right-of-way. The second crossing, also containing four 13 HDPE lines, is along the north right-of-way of Webster Avenue and then turns and heads north along the west right-of-way of SR 15/600 (US 17/92). The FPL FiberNet system was installed in the Fall of 2000, and does not have any plans for improvements at this time.

Progress Telecom
Progress Telecom, a Progress Energy Company, has facilities that consist of aerial and underground cables. The aerial cables run along the east right-of-way of SR 15/600 (US 17/92) from Harmon Avenue north to the Florida Power sub-station at Symonds Avenue. The aerial cable crosses SR 15/600 (US 17/92) at three locations. One location is approximately 100 feet south of the Fairbanks Avenue and SR 15/600 (US 17/92) intersection. The second crossing is along the south side of Fairbanks

Avenue, running from east to west. The third crossing is from the southeast corner of W. Canton Avenue running west along the Florida Power Transmission main. The underground cable crosses SR 15/600 (US 17/92) along the south side of Minnesota Avenue from east to west. At this time, Progress Telecom does not have any plans for improvement.

CSX Railroad

CSX Transportation, Inc. operates two railroad crossings within the SR 15/600 (US 17/92) study area. The following descriptive information was generated from the FDOT District Five Planning Office Railroad Crossing Index.

An at-grade railroad crossing is located near the Orange Avenue intersection along SR 15/600 (US 17/92) in the City of Winter Park. The crossing number is 622169T and is located at Railroad Milepost 786.9. At the time of the FDOT's last inventory update in 1998, a total of 13 trains use this crossing each day (7 through trains in the morning and 6 through trains in the evening). The type of rail traffic is documented as passenger and the maximum train speed is 25 miles per hour. There are two (2) main tracks located at this crossing. The crossing surface type is concrete slab and is rated in excellent condition with a smooth transition.

The second railroad crossing is located between Monroe Street and Park Avenue in the City of Maitland and consists of an overpass over SR 15/600 (US 17/92). The crossing number is 622149G and is located at Railroad Milepost 784.3. At the time of FDOT's last inventory update in 1998, a total of 15 trains used this crossing every day (6 through trains and 5 switch trains in the morning and 2 through trains and 2 switch trains in the evening). The type of rail traffic is documented as passenger and the maximum train speed is 25 miles per hour. There is one (1) main track located at this crossing.

4.1.13 Pavement Conditions

The existing SR 15/600 (US 17/92) pavement is 7-inch thick cement concrete pavement. The cross section of the pavement is parabolic with 1/2":1' minimum cross slopes. A request for a pavement conditions forecast report from FDOT District Five was made during the study. A portion of this report can be found on the following page. This report (dated July 2002) rates the condition of the pavement based on cracks along the pavement, ride, and any rutting of the limerock base. For the year 2002, the section of SR 15/600 (US 17/92) between SR 50 (Colonial Drive) and SR 438 (Lee Road) (milepost 2.622 to milepost 6.259), the report shows cracking rates below 6.0 and ride rates of 6.1. From Lee Road to Monroe Street, the report shows rates below 6.0 for cracking and above 6.0 for ride conditions.

ALL SYSTEM PAVEMENT CONDITION FORECAST
PAVEMENT IMPROVEMENT PROJECTS IN FM WPA TENTATIVE PLAN -- 2003 - 2008, EXTRACTED ON 07/28/02
SORT BY RDWYID MILEPOST R ASCENDING L DESCENDING

DISTRICT = 5 COUNTY = ORANGE

RDWYID / SR US / INTERSECT AT (MP SIDE) / ITMSEG-P / CONTRACTOR (YEAR--PAVEMENT ONE YR OLD) / ITMSEG-F	BMP / G_BMP / W_BMP	EMP / G_EMP / W_EMP	RW LN	SYSTEM SPEED / FY-P WKMX-P / FY-F WKMX-F	TYPE AADT %T	DISTRESS RATINGS	SURVEYED YEAR 1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	FUTURE 1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2007 (REG)
75020000 500 441 COUNTRY CLUB VILLA(1.0C) 2389581 2395232	0.814 0.000 	7.298 7.200 2.459@	L 2 C C	1 50 1977 (1977) 2001	2 35000 10.7 0220 0012	CRACKING RIDE RUTTING CRACKING RIDE RUTTING	10.0 8.1 10.0 9.4 8.7 9.0	10.0 8.1 10.0 9.0 7.9 9.0	10.0 8.2 10.0 9.0 8.6 8.0	 9.0 8.6 9.0	10.0 7.3 10.0 9.0 8.4 9.0	10.0 8.9 10.0 9.0 8.5 8.0	10.0 8.5 10.0 9.0 8.5 8.0	 9.0 8.5 8.0	 9.0 8.3 8.0	8.7 8.3 9.0 9.0 6.0* 9.0	8.7 8.6 9.0 9.0 7.6 8.0	8.7 8.9 9.0 8.5 4.9* 9.0	9.4 8.6 7.7 8.0	 8.0 7.3 8.0
75030000 15 17 SR 500-600/SR 526-600-WASH(0.0C) 2391641 SLOAN CONSTRUCTION CO INC 4117271	0.000 0.000 	0.851 2.141 2.118	C 2 C C	1 30 1989 (1990) 2005	1 8500 3.7 0220 0012	CRACKING RIDE RUTTING CRACKING RIDE RUTTING	6.2* 4.5* 8.0 10.0 8.1 9.0	4.8* 4.8* 8.0 10.0 7.3 9.0	4.8* 3.9* 9.0 10.0 7.6 7.0	 10.0 7.7 7.0	4.8* 0.9* 8.0 10.0 7.8 8.0	4.8* 5.4* 9.0 10.0 7.7 8.0	4.8* 4.2* 9.0 10.0 7.6 8.0	 10.0 7.8 7.0	 10.0 7.3 8.0	7.7 6.0* 9.0 9.0 6.5 8.0	7.7 5.5* 9.0 9.0 6.2* 8.0	7.7 6.1* 9.0 8.0 6.6 9.0	 7.0 6.5 8.0	 7.0 5.9* 8.0
75030000 15 17 SR 526-HUGHEY/SR 526-WASHI(0.9C) 2391641 SLOAN CONSTRUCTION CO INC 4117271	0.851 0.000 	1.069 2.141 2.118	C 3 C C	1 30 1989 (1990) 2005	1 6600 3.7 0220 0012	CRACKING RIDE RUTTING CRACKING RIDE RUTTING	6.2* 4.5* 8.0 10.0 6.4* 9.0	4.8* 4.8* 8.0 10.0 5.9* 9.0	4.8* 3.9* 9.0 10.0 5.0* 8.0	 10.0 5.6* 9.0	4.8* 0.9* 8.0 10.0 4.8* 9.0	4.8* 2.5* 9.0 10.0 5.6* 9.0	8.7 0.9* 8.0 10.0 3.7* 9.0	 10.0 5.9* 9.0	 10.0 3.1* 8.0	7.0 4.2* 9.0 10.0 6.1* 9.0	7.0 6.8 8.0 10.0 6.6 9.0	7.0 4.1* 8.0 10.0 6.4* 10.0	 10.0 6.3* 9.0	 10.0 5.9* 9.0
75030000 15 17 @SR 50-COLONIAL/SR 15-MILL(2.6C) (1977)	1.069 	2.118 	C 4 	1 30 	1 14000 3.7 	CRACKING RIDE RUTTING 	6.2* 4.5* 8.0 10.0 6.3* 9.0	4.8* 4.8* 8.0 10.0 6.5 9.0	4.8* 3.9* 9.0 10.0 5.8* 8.0	 10.0 6.4* 9.0	4.8* 0.9* 8.0 10.0 5.6* 9.0	6.2* 6.1* 8.0 9.0 6.5 9.0	6.2* 3.4* 8.0 9.0 5.2* 9.0	 9.0 5.9* 8.0	 9.0 5.6* 8.0	6.2* 5.8* 8.0 9.0 4.3* 9.0	6.2* 5.4* 8.0 9.0 4.0* 9.0	6.2* 5.1* 8.0 9.0 4.3* 9.0	 9.0 4.3* 8.0	 8.0 3.2* 8.0
75030000 15 17 SR 526-GARLAND/SR 526-ROBI(1.1C) (1977)	2.622 	6.259 	C 4 	1 35 	4 26500 3.7 	CRACKING RIDE RUTTING 	10.0 6.7 6.8 7.4 	 6.5 7.7 	 6.5 5.2* 	 6.5 5.2* 	 6.5 5.2* 	 6.7 5.3* 	7.2 7.3 6.8 5.1* 	 6.8 5.9* 	 6.8 5.7* 	6.8 7.3 6.8 6.2* 	7.1 6.5 6.8 5.3* 	6.6 7.1 5.1* 6.1* 	6.7 7.3 5.0* 6.1* 	 5.0* 5.1*
75030000 15 17 SR 423-LEE RD/SR 15-SR 600(6.3C) (1977)	6.259 	7.146 	R 3 	1 40 	4 49500 3.7 	CRACKING RIDE RUTTING 	10.0 7.6 6.5 8.0 	 6.5 8.2 	 6.1* 7.3 	 6.0* 7.3 	 6.0* 7.3 	 5.8* 7.4 	5.9* 7.7 5.7* 6.7 	 5.5* 5.9* 	 5.6* 7.6 	6.5 7.7 5.9* 6.2* 	0.1* 7.8 5.7* 5.5* 	6.8 7.8 3.2* 6.3* 	6.5 7.9 3.7* 6.5 	 3.5* 6.0*

"*" INDICATES PAVEMENT RATED 6 OR LESS;
2007 FORECASTED BY SIMPLE LINEAR REGRESSION.

"@" INDICATES PROJECT LENGTH SHORTER THAN ROADWAY SEGMENT 1 MILE OR MORE

4.2 Existing Bridges

There are no existing bridge structures located within the SR 15/600 (US 17/92) study area limits from Norfolk Avenue to Monroe Street; however, there is a bridge structure located just outside the study limit north of Monroe Street for the CSX Transportation railroad facility. CSXT Bridge No. A-784.4 was originally constructed in 1937. This structure was modified and extended in the 1950's. The existing bridge length is approximately 275 feet. The superstructure consists of an eight (8) span steel "through plate girder" founded on octagonal pre-cast concrete piling. Three (3) of these spans are located over the northbound and southbound travel lanes of SR 15/600 (US 17/92) north of Monroe Street. The existing structure is centered within an approximate 60 foot swathe of existing CSXT right of way. The bridge crosses SR 15/600 (US 17/92) approximately 350 feet south of the Park Avenue intersection with SR 15/600 (US 17/92) and is within a 35 mph roadway speed limit zone.

The existing bridge configuration consists of a single railroad track with each rail approximately five (5) feet apart. The longitudinal steel "through plate girders" supporting the track are located approximately 17 feet center to center.

The existing vertical clearance for SR 15/600 (US 17/92) beneath the CSXT Railroad bridge is 13 feet, 8 inches. Since the vertical clearance is less than current AASHTO & FDOT design standards, signs have been posted at the bridge location.

The existing horizontal clearances from the piers to the face of gutters are less than the required 16 feet; therefore, guardrail has been provided to shield the piers. The horizontal clearances are listed below:

Northbound:	Outside 5 feet	Inside 5 feet
Southbound:	Outside 5.5 Feet	Inside 5 feet

The vertical alignment of the CSX Railroad bridge over SR 15/600 (US 17/92) is a zero-percent grade. The horizontal alignment is an 1800' tangent section of the railroad between two opposite direction horizontal curves.

4.3 Environmental Characteristics

4.3.1 LAND USE DATA

4.3.1.1 Existing Land Use

Existing land use within the study area was reviewed in order to

determine the potential impacts of the project. The existing land within the study area use along the SR 15/600 (US 17/92) corridor is dominated by commercial and office but also includes both single family and multi family residential, office or professional, recreation, institutional, and light industrial.

The following is a brief description of the existing land uses and the general locations of these uses:

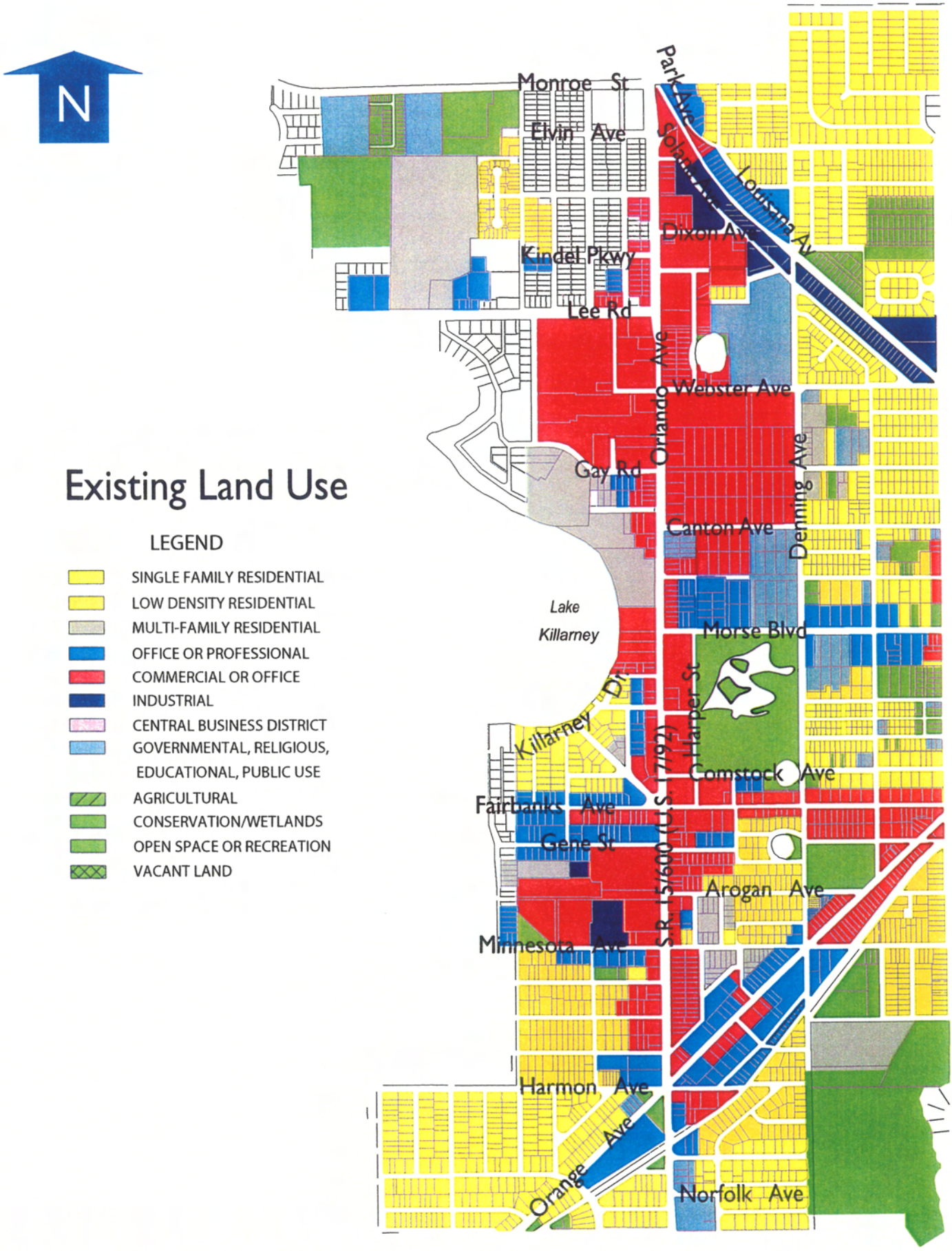
Commercial/Office: These major land uses include Winter Park Village, Big K K-mart Plaza, Hollieana Plaza and car dealerships including Bill Bryan Subaru, Don Reid Ford, Holler Dodge and Holler Honda.

Residential: The Orwin Manor neighborhood is located on the southern end of the study area near Norfolk Avenue. The Lake Killarney Condominiums are located near the intersection of Morse Boulevard.

Industrial: There are light industrial land uses along Solana Avenue including warehouses, storage facilities and boat and auto repair facilities. Florida Power has an electrical substation located near Canton Avenue.

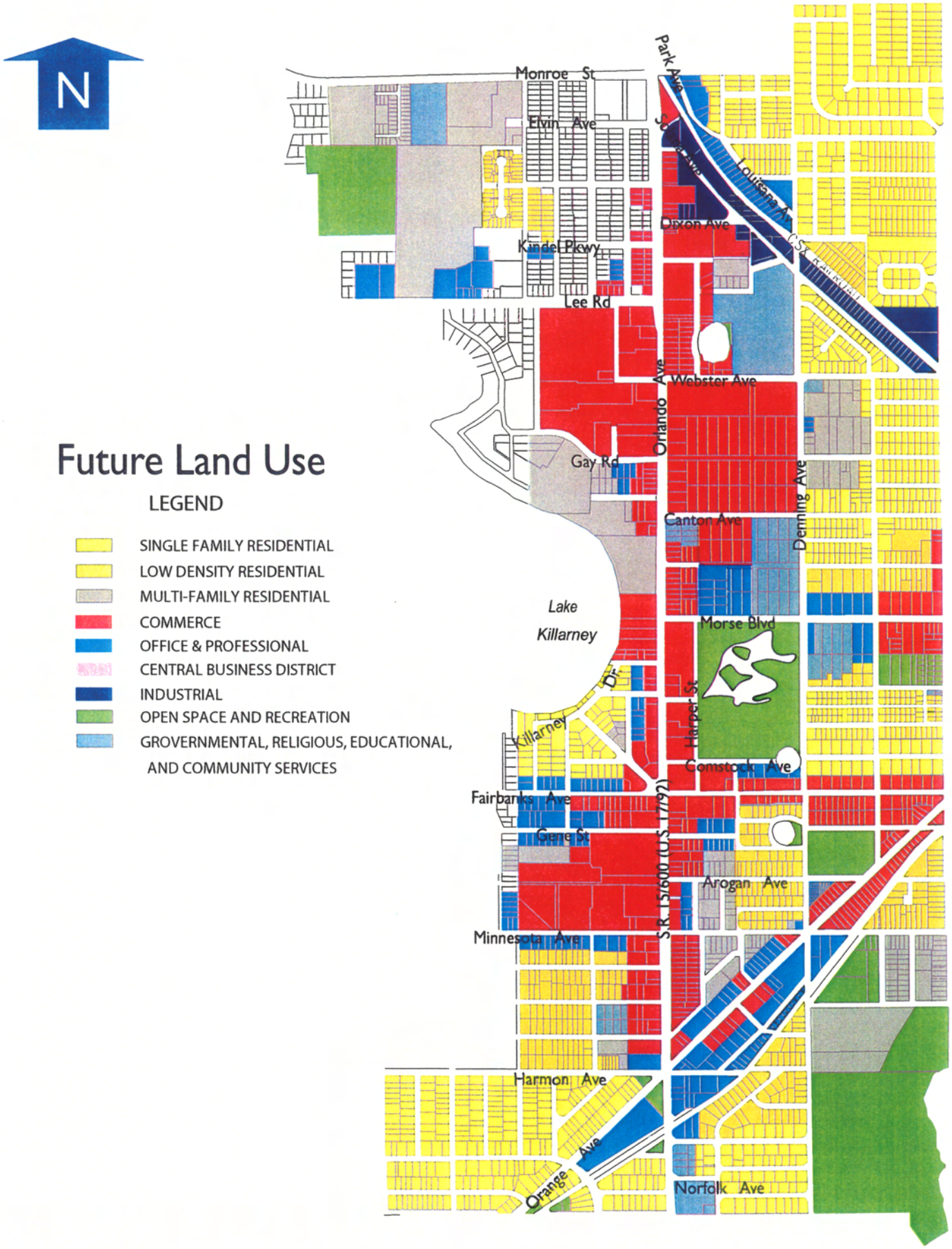
Institutional: This land use designation includes government buildings, parks, schools, and churches. These facilities are scattered throughout the study area and include the branch campuses of Troy State University and Warner Southern College as well as the St. John's Lutheran Evangelical Church.

Figure 4-10 shows existing land use designations described above. Future land use designations generally consist of similar uses, as shown in Figure 4-11.



SR 15/600 (US 17/92) Project Development and Environment Study
From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 4-10



SR 15/600 (US 17/92) Project Development and Environment Study

From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 4-11

4.3.2 CULTURAL FEATURES AND COMMUNITY SERVICES

4.3.2.1 Cultural Features and Community Services

Existing cultural features and community services located within the SR 15/600 (US 17/92) study area are listed below and are shown on Figure 4-12.

- Lake Island Park
- Rachel D. Murrah Civic Center
- Orange County Vo-Tech
- Center for Independent Living

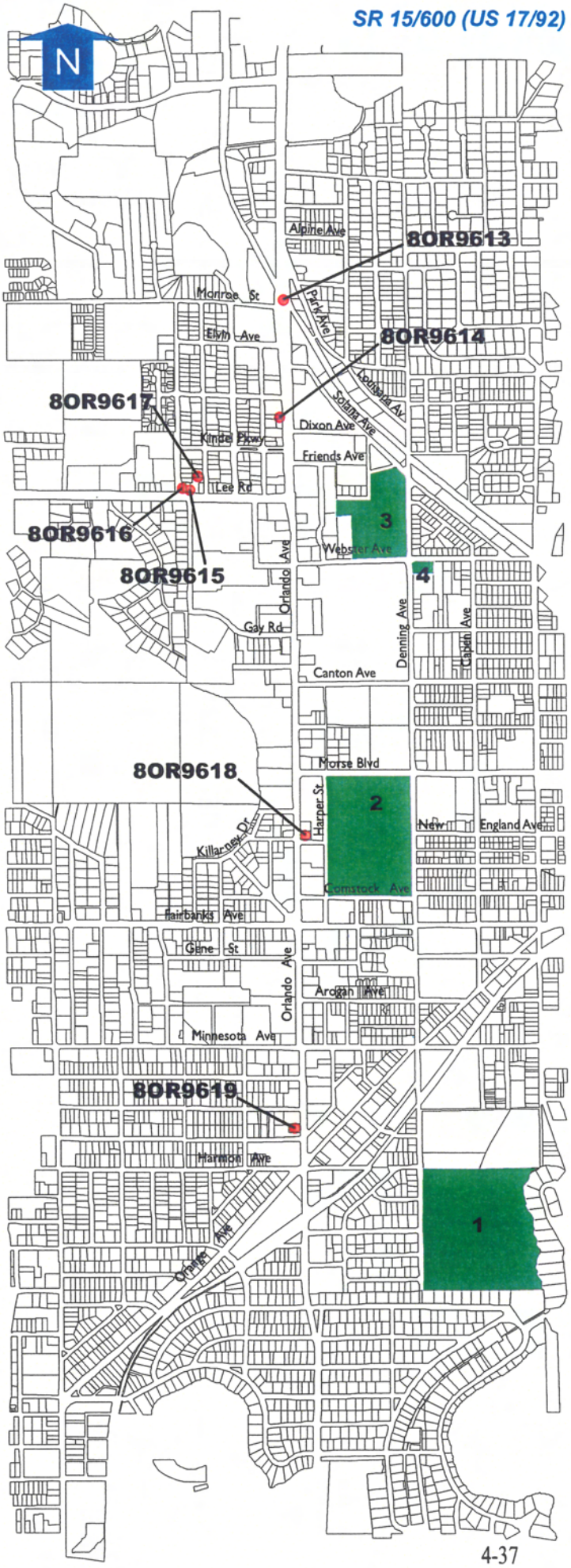
4.3.2.2 Archaeological Resources

Background research and a review of the Florida Master Site File (FMSF) indicated that no archaeological sites, including any sites listed in the ***National Register of Historic Places (NRHP)*** were recorded within or adjacent to the archaeological area of potential effect (APE) for the SR 15/600 (US 17/92) study. A review of relevant site information for environmentally similar areas within Orange County, Florida and the surrounding region indicated a variable (low to moderate) potential for the occurrence of prehistoric sites within the archaeological APE. The background research also indicated that sites, if present, would likely be small lithic or artifact scatters. As a result of field surveys conducted for this study, no archaeological sites were discovered.

4.3.2.3 Historic Resources

Historical background research, including a review of the FMSF and the ***NRHP***, indicated that no historic properties (50 years of age or older) were recorded within or adjacent to the historical APE. Six (6) potential historic resources were identified and recorded involving residential or commercial buildings. These six buildings are neither distinguished by their architectural features, nor known to be associated with significant events or with the lives of persons significant in the past. In addition, many of the buildings have been extremely altered, resulting in a loss of architectural integrity. By these criteria, none of the historic resources appear to be eligible for listing in the NRHP, either independently or as part of a district.

Cultural Features Community Services & Potential Historical Sites



LEGEND

Civic / Public Amenities

Newly Recorded Historic Resources

8OR9613 - CSX Railroad Overpass
8OR9614 - 1121 North Orlando Avenue
8OR9614 - 1501 Lee Road
8OR9616 - 1531 Lee Road
8OR9617 - 1549 Lee Road
8OR9618 - 276 South Orlando Avenue
8OR9619 - 1155 South Orlando Avenue
1 - Lake Island Park
2 - Rachel D. Murrah Civic Center
3 - Orange County Vo-Tech
4 - Center For Independent Living

Figure 4-12

4.3.3 NATURAL AND BIOLOGICAL FEATURES

The SR 15/600 (US 17/92) corridor was investigated through review of published information, review of State database occurrence records, and field reviews to ground truth on-site vegetative communities and approximate wetland boundaries. Field investigations were conducted by representatives of DRMP during October 2002. Maps defining the vegetation associations/land uses, wetland location and Threatened and Endangered species habitat were developed. The project study area was traversed to determine the following:

- On-site vegetation
- Landward extent of jurisdictional wetlands
- Land use within the project corridor
- Threatened and Endangered animal and plant species habitat

A geographic information system (GIS) database, obtained from the University of Florida Geographic Data Library, was used to determine existing land uses in the project corridor. The corridor was inspected in the field to verify the accuracy of the GIS database. The specific methodology employed for each study criteria is documented below.

For the purpose of determining constraints, all forested and herbaceous wetlands, surface waters and open water bodies identified on the GIS land use database were considered jurisdictional wetlands. In addition the GIS land use database, wetlands were identified through the use of the United States Fish and Wildlife Service (USFWS) *National Wetland Inventory* (NWI) maps, United States Department of Agriculture (USDA) *Natural Resource Conservation Service* soil surveys, and aerial photography.

Using the information obtained from the above data sources as a guide, field surveys were conducted on October 2002 to verify approximated wetland boundaries and to characterize wetland habitat within the project corridor. Vegetation structural diversity was noted for each wetland, including type, plant composition and stratification, and hydric characteristics. Each wetland site was identified in the field using the delineation methods described in the US Army Corps of Engineers (ACOE) "Federal Manual for Identification and Delineation of Wetlands", dated 1987, and Statewide Unified Methodology and Criteria as adopted by the Florida Department of Environmental Protection (FDEP), and the Water Management Districts.

Wetland classification occurring within the project corridor was

determined based on the FDOT's Florida Land Use, Cover and Forms Classification System (FLUCCS) (January 1999). FLUCCS codes were determined to Level III and IV classification for specific identification of wetland and upland habitats occurring with the project corridor. Definitions of Level IV classification that are not specifically described in the FLUCCS classification system were developed based on field observation of dominate vegetation and hydrology.

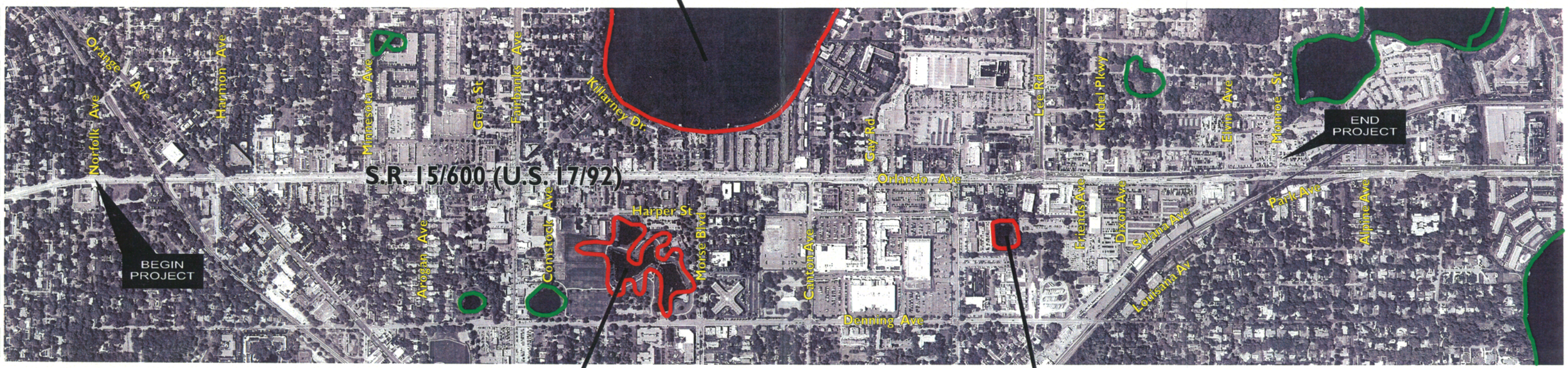
Wetlands Within the Project Limits

In accordance with Executive Order 11990, "Protection of Wetlands," Federal Highway Administration Technical Advisory 6640.8A, and 23 CFR part 777 as amended, an assessment was conducted of wetlands having the potential to be impacted by the proposed improvements. The NWI Maps document three wetlands within 500 feet of the existing SR 15/600 (US 17/92) project study area. These systems were also field verified for accuracy. Avoidance alternatives were considered during the study to completely avoid impacts to wetlands. The three wetlands are summarized in Table 4-7 and are shown on Figure 4-13. The character of wetlands within and adjacent to the study corridor varies in response to the historical drainage patterns and intensity of more recent human activities. The wetlands within the project corridor include herbaceous systems.

Wetland 1 (Lake Killarney) is located west of the intersection of the SR 15/600 (US 17/92) and Morse Boulevard. It is approximately 236.7 acres in size. It is classified by the USFWS as L1UBH (lacustrine, limnetic, unconsolidated bottom, permanently flooded). This wetland is characterized by open water fringed by Cypress, (*Taxodium distichum),* Bog rushes (*Junca sp.),* Cattail (*Typha sp.) Pontederia cordata,* wild taro *(Colocasia esculenta),* torpedo grass *(Panicum repens,* and water primrose *(Ludiwigia sp.).* Privately owned boat docks are located all the way around the perimeter. This wetland is used as a recreation facility but also provides habitat for a variety of small mammals and birds.

Wetland 2 (Lake Mendsen, which is also known as Lake Island) is located near the intersection of Morse Boulevard and Harper Avenue. This wetland is approximately 6.7 acres in size and is classified by USFWS as a PEM1C (palustruine, emergent, persistent, seasonally flooded) which is characterized by sparse patches of cypress, willow (*Salix carolinia),* pickerelweed (*Pontederia cordata)* and alligator weed (*Alternanthera philoxeroides)* in the littoral zone.

Wetlands Map



Wetland

Wetlands within 500'

Figure 4-13

Wetland 3 (Lake Francis) is located directly east and adjacent to Galloway Avenue. This system is classified as PUBHx (palustrine, unconsolidated bottom, permanently flooded, excavated). This system is approximately 1.2 acres in size and is densely vegetated with cattail, torpedo grass, pickerelweed, willow and primrose willow. Lake Francis is a small lake which has been excavated and reshaped into a rectangular-shaped pit. Lake Francis is drained by a 6-inch drainage well located to the southwest of the lake and is considered a land-locked lake.

All wetland areas within the project corridor have a history of physical and hydrologic alteration resulting from the development of this area and the drainage features installed to reduce flooding concerns within the area. Many of the developed portions of the project corridor drain directly into wetland systems with no pre-treatment of the stormwater for pollution control.

Table 4-7 Wetland Summary

Wetland	Name	USFWS Classification	Total Area (Acres)
W-1	Lake Killarney	L1UBH	236.7
W-2	Lake Mendsen (Lake Island)	PEM1C	6.7
W-3	Lake Francis	PUBHx	1.2

Threatened and Endangered Species

The urbanized nature of the SR 15/600 (US 17/92) corridor limits utilization by threatened and endangered species. Vegetation is sparse with moderately vegetated sites located around Lake Killarney and Lake Francis. Construction-related impacts are anticipated to be minimal. No Federal or State listed plants were observed during the field survey. Wading birds were observed utilizing the wetland areas, however there were no rookeries or major concentrations of these species observed and the overall impacts to wading birds would not be anticipated. No portion of the study area has been designated as Critical Habitat by the US Fish and Wildlife Service.

A comprehensive literature review was conducted to determine the potential for occurrence of any listed species with known geographic ranges that coincide with the project corridor. Project biologists consulted the Florida Fish and Wildlife Conservation Commission (FFWCC), United States Fish and Wildlife Service species lists, and the *Florida Natural Areas Inventory* (FNAI). Additionally, a detailed review of project aerial photographs, and a preliminary field survey were conducted in order to determine the various habitat types within the vicinity of the proposed project.

Pursuant to Section 7(c) of the Endangered Species Act of 1973, the project corridor was evaluated for the potential occurrence of threatened and endangered species. State and federally listed species (endangered, threatened and species of special concern) potentially occur within the project corridor. Based upon the literature review, coordination with environmental agencies, and subsequent field reconnaissance, a list of species that could potentially occur in the project corridor was developed (See Table 4-8 below). The following is not a conclusive list of species occurrence as extensive site surveys were not conducted as a part of this study.

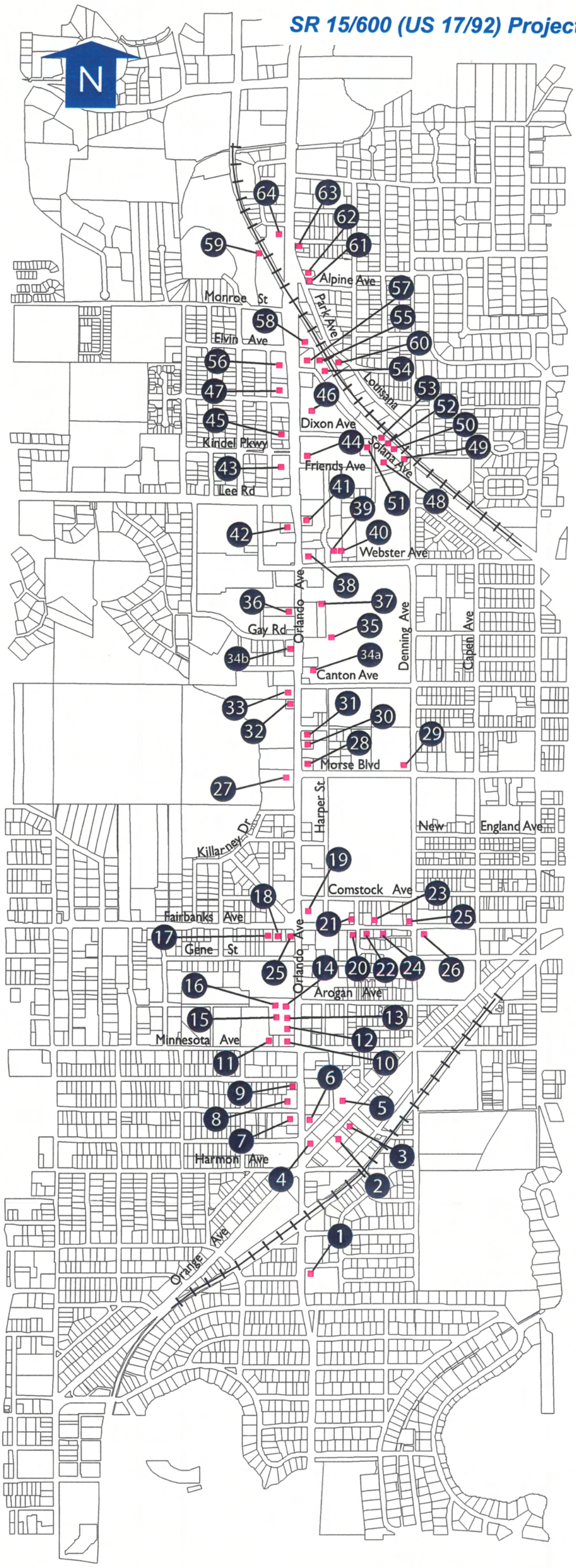
Table 4-8 SR 15/600 (US 17/92) Federally Threatened and Endangered Flora and Fauna

MAMMALS			
Common Name	**Scientific Name**	**State Status**	**Federal Status**
Bear Florida Black	*Ursus americanus floridanus*	SSC	C
BIRDS			
Sandhill crane	*Grus canadensis*	T	-
Eagle, Bald	*Haliaeetus leucocephalus*	T	T
Limpkin	*Aramus guarauna*	SSC	-
Scrub-Jay, Florida	*Aphelocoma coerulescens*	E	E
Wood Stork	*Mycteria americana*	E	E
Woodpecker, Red-cockaded	*Picoides borealis*	E	E
REPTILES			
Gopher Tortoise	*Gopherus polyphemus*	SSC	
Snake, Eastern Indigo	*Drymarchon corais couperi*	T	T
PLANTS			
Bear-grass, Britton's	*Nolina brittoniana*	-	E
Bonamia, Florida	*Bonamia grandiflora*	-	T
Lupine, Scrub	*Lupinus aridorum*	-	E
Pawpaw, Beautiful	*Deeringothamnus pulchellus*	-	E
Sandlace	*Polygonella myriophylla*	-	E
Whitlow-wort, Papery	*Paronychia chartacea = Nyachia pulvinata*	-	T
Wild Buckwheat, Scrub	*Eriogonum longifolium var.g = Eriogonum floridanum*	-	T

E = Endangered, T = Threatened, C = Candidate, CH = Critical Habitat, P = Proposed,
SSC = Species of Special Concern

4.3.4 CONTAMINATION SITES

An evaluation of properties within the SR 15/600 (US 17/92) corridor was conducted to evaluate if hazardous waste or hazardous materials exist that may impact future roadway construction. The study area commences at Norfolk Avenue and extends to Monroe Street. The lateral extent of the study area includes the SR 15/600 (US 17/92) corridor, and corresponding right-of-way areas, and the entire area extending from SR 15/600 (US 17/92) eastward to Denning Drive. These sites are shown on Figure 4-14 and Table 4-9. A full description of the potential contamination sites located within the study area can be found in the SR 15/600 (US 17/92) Contamination Screening Evaluation Report which is located in the project file.



Potential Contamination Sites

Site Location

1. St. Johns Lutheran Church
2. First Printing and Copy Center
3. State Auto Body Works
4. Einstein Bros. Bagels
5. Jewett Medical Clinic
6. All Florida Paint & Decorating
7. GS Farm Produce
8. Krispy Kreme
9. Signs Now
10. Firestone
11. Car Emergency Room
12. Mab Paints
13. Orange Tree Antiques & Mall
14. Spring Cleaners of Winter Park
15. ADT Security Systems
16. Systems Devices and Supplies
17. Elite Motors of Winter Park
18. Quick Signs
19. Winter Park Texaco
20. Goodyear/Action Tire Suto Service Center
21. Winter Park Auto Electric
22. Mobil Lube Express
23. Alarm Products Distributors World Wide, Inc.
24. Marc's Hair Studio
25. Imperial Laundry & Dry Cleaners
26. Roger Holler Chevrolet Co.
27. Adventist Health System
28. Midas Muffler
29. Bank First
30. Mid-Florida Imaging
31. Priceless Dry Cleaners
32. Dent Wizard
33. Liquidation Station
34a. Chamberlins Market
34b. Winter Park Terrace
35. Winter Park Village
36. Royal Coach Car Wash
37. Former Oklahoma Installation Company
38. Amoco
39. The Volvo Store
40. Vacant (Former Bills Cleaner)
41. Ice Cold Auto-Air
42. Ritz Cleaners
43. Bill Bryan Imports
44. Holler Dodge
45. Richies Economy Cars, Inc.
46. Roger Holler Honda
47. U-Haul Center of Winter Park
48. C&H Auto Service, Inc.
49. Joe's Autos Services
50. Ron Parks Motor Sports
51. Dingman Petroleum Company
52. Takash Race Craft
53. Race Car Engineering
54. At Your Service Auto Repair
55. Savage Automotive, Inc.
56. Don Reid Ford
57. Speedway
58. U-Save Auto Rental
59. CSX Railroad Overpass at Roadway
60. Classic Laundry and Dry Cleaning
61. Park Avenue Snapper
62. Rads Antiques & Refinishing
63. Parkland Printing
64. Enterprise Rent-A-Car

Figure 4-14

Table 4-9 Summary of Potential Contamination Sites

Site No.	Rank	Name	Activity	Comment
1	Medium	St. Johns Lutheran Church	Church	'92 Discharge, RAP, '00 MOP approved.
2	Low	First Printing & Copy Center	Printing Service	No file info available.
3	Low	State Auto Body Works	Auto Repair and Body / Paint Shop	No file info available.
4	Medium	Former Shakepearins, Inc. a.k.a. Car Tunes Audio (Currently Einstein Brothers Bagels)	Former Auto/Audio Installation	'95 NFA.
5	No/Low	Former Orange Radiology (Currently Jewett Medical Clinic)	Medical / Radiology services	No file available.
6	High	Former Union 76 / Fina Station (Current All Florida Paint & Decorating)	Former Gasoline Service Station	'02: Tanks closed in-place, no closure report.
7	High	Former My Brothers Fina (Currently GS Farms Produce)	Former Gasoline Service Station	'91 Discharge (reported at time of tank removal), '96 letter indicates soil and groundwater contamination exists at site.
8	Low	Former Winter Park Marine (Currently Crispy Creme)	Potential Former Marine Engine Repair	No file info available.
9	No/Low	Signs Now	Printing and Signage Services	No file info available.
10	High	Firestone # 19E9	Tire Sales and Service	'89 Oil underground storage tank (UST) removed, potential contamination, no closure.
11	Medium	Former Holler Chevrolet Company (Currently Car Emergency Room)	Former Auto Sales and Maintenance	'97 Tanks removed, no other info available.
12	Low	MAB Paints	Paint Supply Store	No file info available.
13	Low	Former Eagle G. Ward Auto Parts Inc. (Currently Orange Tree Antiques Mall)	Former Auto Parts Supply and Sales (RCRA Generator)	No file info available.
14	High	Spring Cleaners of Winter Park	Dry cleaner (RCRA Generator and LUST Site)	No file info available.
15	No/Low	ADT Security Systems	Electronic Supply and Repairs	No file info available.
16	No/Low	Systems Devices & Suppliers, Inc.	Electronic Supply and Repairs	No file info available.
17	Low	Elite Motors of Winter Park	Auto Sales and Maintenance	No file info available.
18	Low	Quick Signs	Printing and Signage services	No file info available.
19	High	Winter Park Texaco # 24-025-0193	Gas Station/Convenience Store	'86 Discharge, Remediation continues.
20	Medium	Good Year Auto Service Center	Tire Sales and Service	'90 Waste Oil tank removed, soil contamination. '91 NFA.
21	High	Winter Park Auto Electric	Auto Maintenance and Repair	'91 Compliance Inspection: No tanks, utilizes 55-gallon drums.
22	Low	Mobil Lube Express	Auto Maintenance	'02 Compliance Inspection: No violations noted.
23	No/Low	Former Hill Printing, Inc. (Currently Alarm Products Distributors World Wide, Inc.	Former Printing Services (RCRA Generator)	No file info available.

Site No.	Rank	Name	Activity	Comment
24	High	Former Rodriquez Property (Currently Marc's Hair Studio)	LUST Site	No File info available.
25	Low	Imperial Laundry & Dry Cleaners	Dry Cleaner	'99 Compliance Inspection: No violations noted.
26	High	Roger Holler Chevrolet	Auto Sales and Maintenance	'90 Discharge reported during tank (mineral spirits) removal. '95 CAR, '96 Petroleum tanks removal, no other info available.
27	High	Former Gale Building (Currently Adventist Health Systems)	LUST Site	No file info available.
28	Low	Midas Muffler	Auto Maintenance and Repair	'02 Compliance Inspection: No violations noted.
29	High	Former Morse Blvd. Development Associates (Currently BankFIRST)	LUST Site	'89 Tank discovered during building demolition. Soil contamination documented. No other info available.
30	Low	Mid-Florida Imaging	Printing Services	No file info available.
31	Low	Priceless Dry Cleaners	Dry Cleaner	'02 Compliance Inspection: No violations noted.
32	High	Former Match Point Tennis (Currently Dent Wizard)	RCRA Generator and LUST Site	No file info available.
33	High	Former Action Tire/ Tire Kingdom (Currently Liquidation Station)	Former Tire Sales and Service	'86 tanks removed. No other info available.
34	High	Former Firestone #19FT (Currently Chamberlins Market)	Former Tire Sales and Service	'89 Tank Closure Report, No NFA.
35	Low	Former Winter Park Mall (Currently Winter Park Village)	Former RCRA Generator	No file info available.
36	High	Royal Coach Car Wash (Currently Rain Dancer Car Wash)	Car Wash	'97 Tanks removed, Soil contamination, No other info available.
37	No	Oklahoma Installation Company (Potential Former outparcel of Former Winter Park Mall)	Former RCRA Generator	No file info available.
38	High	Former Shell Station (Current Amoco # 15293)	Gas Station/Convenience Store	'92 Discharge, Soil cleanup, '92 Free product recovery, No other info available.
39	Low	Volvo Store	Auto Sales	'99 Waste oil tanks removed, no visual evidence of contamination. '02 Compliance Inspection: No violations noted.
40	Low	Bills Cleaners	Dry Cleaner	RCRA Generator, No File info available.
41	Low	Ice Cold Auto Air	Auto Maintenance and Repair	No File info available.
42	High	Ritz Cleaners	Dry Cleaner	RCRA Generator and LUST Site.
43	Low	Bill Bryan Imports	Auto Sales and Maintenance	'02 Compliance Inspection: No violations noted.
44	Medium	Holler Dodge	Auto Sales and Maintenance	'95 Waste Oil Tank Removal and Tank Closure Assessment Report approved. '99 Compliance Inspection: No violations noted.
45	Medium	Former Richie's Economy Cars, Inc. (Currently Central Florida Truck Accessories)	Former Auto Sales and Maintenance	'92 Petroleum tanks removed and Tank Closure Assessment approved.
46	High	Roger Holler Honda	Auto Sales and Maintenance	'90 Discharge reported, '91 Petroleum tanks

Site No.	Rank	Name	Activity	Comment
				removed, '91 Cleanup activities, No NFA.
47	High	U-Haul Custom Hitches / U-Haul Center of Winter Park	Vehicle Rental	'88 Discharge reported, '97 tank closure, no contamination found.
48	Low	C&H Auto Service Inc.	Auto Maintenance and Repair	'93 Compliance Inspection: No violations noted.
49	Low	Joe's Auto Service	Auto Maintenance and Repair	No File info available.
50	Low	Ron Parks Motor Sports	Auto Maintenance and Repair	No File info available.
51	Medium	Former Dingman Petroleum Company, Inc. (Currently vacant)	LUST Site and Former RCRA Generator	'92 Oil discharge reported. '95 Inspection found 22 aboveground storage tanks, and all tanks subsequently removed.
52	Low	Takash Race Craft	Race Car Construction and Repair	No File info available.
53	Low	Race Car Engineering	Race Car Construction and Repair	'99 Compliance Inspection: No violations noted.
54	Low	At Your Service Import Auto Repair	Auto Maintenance and Repair	No File info available.
55	Low	Savage Automotive Inc.	Auto Maintenance and Repair	No File info available.
56	Medium	Don Reid Ford	Auto Sales and Maintenance	'94 NFA. '02 Compliance Inspection: No violations noted.
57	High	Speedway # 9862	Gas Station/Convenience Store	'86 Discharge, Remediation system currently inactive.
58	Low	U-Save Auto Rental	Auto Rental and Maintenance	No File info available.
59	High	CSX Railroad Bridge Overpass	CSX Railroad Bridge Overpass	Lead-based paint, ERNS Site.
60	Low	Classic Laundry & Dry Clean	Dry Cleaner	No File info available.
61	Low	Park Avenue Snapper	Sales and Small Engine Repair	No File info available.
62	Low	RADS Antiques Refinishing	Furniture Restoration	No File info available.
63	Low	Parkland Printing	Printing Services	No File info available.
64	High	Currently Enterprise Rent-A-Car	Vehicle Rental	LUST Site, No File info available.

Based upon the findings of the Contamination Screening Evaluation Report (CSER), 64 sites located along the project corridor have the potential for hazardous materials or petroleum contamination. Of the 64 sites, 35 have been assigned a contamination risk potential of Low, 8 were assigned a rating of Medium and 21 were assigned a rating of High.

The sites which were rated High or Medium should be further investigated during the remaining pre-construction phases. Should cleanup procedures be required, FDOT will implement a plan prior to, or during construction, if feasible. Special provisions for handling unexpected contamination discovered during construction will be included in the construction plans package. The potential contamination concerns are not anticipated to affect or delay project implementation significantly. No substantial contamination involvement is anticipated.

5.0 DESIGN CRITERIA AND STANDARDS

The following publications were used to establish the design criteria for this PD&E Study.

- Roadway and Traffic Design Standards (FDOT, 2000, English)
- Plans Preparation Manual (FDOT, 2003)
- A Policy on Geometric Design of Highways and Streets (AASHTO, 1994)
- Manual on Uniform Traffic Control Devices (MUTCD) (Millennium Edition)
- Drainage Manual (FDOT, 2003)
- Drainage Handbook Cross Drains (FDOT, 1996)
- Structures Design Guidelines (FDOT, July 1997)

Table 5-1 summarizes the design criteria to be used during the conceptual design development and analysis phase.

Table 5-1 Design Criteria and Standards for SR 15/600 (US 17/92)

:neral		
n Vehicle	WB 50	FDOT
n Year	2025	FDOT Design Traffic
n Speed SR 15/600 (US 17/92) Lee Road Extension	 35 mph 30 mph	Plans Preparation Manual Table 1.9.1
'pical Sections		
Widths SR 15/600 (US 17/92) Lee Road Extension	 11 to 12 feet 12 feet	Plans Preparation Manual Tables 2.1.1 and 2.1.2
an SR 15/600 (US 17/92)	 12' Painted	Plans Preparation Manual Table 2.2.1
mum Pavement Cross-Slopes Roadways	 0.02	Plans Preparation Manual Figure 2.1.1
mum Algebraic Pav't. Crossover	4% to 5%	1994 AASHTO, Page 738
mum Shoulder Cross-Slope Break	7%	2000 FDOT Roadway and Traffic Design Standards, Index 510
er Widths Lee Road Extension	 12' from edge of pavement	Plans Preparation Manual Table 2.5.2
: Zone From Edge of Travel Lane Lee Road Extension	 4' from face of curb	Plans Preparation Manual Table 2.11 series
orizontal Geometry		
imum Super-elevation Lee Road Extension	 $e_{max} = 0.05$	Plans Preparation Manual Table 2.9.2
mum Stopping Sight Distance Lee Road Extension	 250 feet	Plans Preparation Manual Table 2.7.1
. Curvature of Horiz. Curve Lee Road Extension	 20°	Plans Preparation Manual Table 2.8.3
. Deflection (through lane through section) Lee Road Extension	 3°	Plans Preparation Manual Table 2.8.1b

Vertical Geometry

imum Crest Vertical Curve Lee Road Extension	3 times design speed	Plans Preparation Manual Table 2.8.5
imum Sag Vertical Curve Lee Road Extension	3 times design speed	Plans Preparation Manual Table 2.8.6
imum Grade Lee Road Extension	9%	Plans Preparation Manual Table 2.6.1
imum Change in % Grade ıout Vertical Curve Lee Road Extension	1%	Plans Preparation Manual Table 2.6.2
imum Grade Lee Road Extension	0.3%	Plans Preparation Manual Table 2.6.4
imum Distance Between VPI's Lee Road Extension	250 ft	Plans Preparation Manual Table 2.6.4

Traffic Control (Maintenance of Traffic)

gn Speed	Existing posted speed (desirable) Existing posted speed minus 10 mph (minimum)	Plans Preparation Manual Chapter 10 MUTCD or 2000 FDOT Roadway and Traffic Design Standards, Index 600 Series
: Widths	12' desirable, 10' minimum	Plans Preparation Manual Chapter 10 MUTCD or 2000 FDOT Roadway and Traffic Design Standards, Index 600 Series

6.0 TRAFFIC

The information used in this Section has been extracted from the SR 15/600 (US 17/92) Design Traffic Technical Memorandum prepared by Gyhabi and Associates, Inc. in October 2002. Ghyabi & Associates, Inc. was retained by the Florida Department of Transportation, District Five, to provide transportation engineering services in association with the Project Traffic for PD&E and Design contract. Their technical memorandum was prepared as part of the services covered under this contract pursuant to the Letter of Authorization for Work Order Number 5, dated November 19, 2001. The scope of the Design Traffic Technical Memorandum entailed the development of future traffic forecasts for no-build and build conditions and the evaluation of the characteristics and basic operational conditions of the corridor during the service life of the roadway improvement project.

The methodology prepared for the development of the SR 15/600 (US 17/92) Design Traffic Technical Memorandum is consistent with the Design Traffic procedure (Topic No. 525-030-120-f) published by the Florida Department of Transportation. The methodology covers the following topics:

- Collect relevant traffic count information from the Department's historical traffic count records and from actual field count data, review previous studies, traffic characteristics and other relevant data.

- Based on the data collection process, estimate the travel characteristics of the corridor. These characteristics include Design Hour Volume Factor (K), Directional Design Hour Volume Factor (D), and Design Truck Factor (T).

- Develop future year traffic volume forecasts for the corridor based on trends analysis of historical traffic counts and/or officially adopted travel demand models (FSUTMS).

- Evaluate the future year traffic volume forecasts for the corridor based on capacity to determine whether or not the corridor will operate under constrained or unconstrained capacity conditions.

- Modify the travel characteristics based on constrained or unconstrained operating conditions.

- In addition to design year traffic conditions, develop opening and mid-design year traffic volume forecasts.

- Provide a generalized link level of service analysis for the corridor based on no-build and build traffic conditions.

- Based on the level of service analysis, provide recommendations for improvements to accommodate the anticipated travel demand within the corridor.

- Provide level of service ranges for the no-build and build conditions for the purpose of performing noise analysis.

A complete copy of the SR 15/600 (US 17/92) Design Traffic Technical Memorandum, dated October 2002, is located in the project file.

6.1 Traffic Count Information

In analyzing the existing conditions of the roadway system, traffic counts were collected and recommended traffic characteristics were established. The analysis was performed based on the geometric conditions of existing roadways and intersections.

Historic traffic count information was compiled for the FDOT and Orange County count stations along SR 15/60 (US 17/92). As a supplement to the historic count information, additional 24-hour approach, 72-hour classification, and 6-hour turning movement traffic counts were collected during the month of October 2001. Table 6-1 provides the location of the traffic counts, type of count data, and the date collected. All traffic count data collected during this period were adjusted to reflect average annual conditions using the most recent FDOT Seasonal and Axle Adjustment Factors.

Table 6-1 SR 15/600 (US 17/92) Traffic Counts Data Inventory

Roadway	Limits	Type of Counts	Date of Counts
US 17/92	N. & S. of Orange Ave.	24-hour Approach Count	Wk. of 10/15
	N. & S. of Minnesota Ave.	24-hour Approach Count	Wk. of 10/15
	N. & S. of Fairbanks Ave.	24-hour Approach Count	Wk. of 10/15
	N. & S. of Morse Blvd.	24-hour Approach Count	Wk. of 10/15
	N. & S. of Gay Rd.	24-hour Approach Count	Wk. of 10/15
	N. & S. of Webster Ave.	24-hour Approach Count	Wk. of 10/15
	N. & S. of Lee Rd.	24-hour Approach Count	Wk. of 10/15
	N. & S. of Solana Ave.	24-hour Approach Count	Wk. of 10/15
	N. & S. of Park Ave.	24-hour Approach Count	Wk. of 10/15
Orange Avenue	E. & W. of US 17/92	24-hour Approach Count	Wk. of 10/15
Minnesota Avenue	E. & W. of US 17/92	24-hour Approach Count	Wk. of 10/15
Fairbanks Avenue	E. & W. of US 17/92	24-hour Approach Count	Wk. of 10/15
Morse Boulevard	E. & W. of US 17/92	24-hour Approach Count	Wk. of 10/15
Gay Road	E. & W. of US 17/92	24-hour Approach Count	Wk. of 10/15
Webster Avenue	E. & W. of US 17/92	24-hour Approach Count	Wk. of 10/15
Lee Road	W. of US 17/92	24-hour Approach Count	Wk. of 10/15
Solana Avenue	E. of US 17/92	24-hour Approach Count	Wk. of 10/15
Park Avenue	E. of US 17/92	24-hour Approach Count	Wk. of 10/15
Denning Drive	S. of Webster Ave.	72-Hour Classification Count	Wk. of 10/15
	S. of Fairbanks Ave.	72-Hour Classification Count	Wk. of 10/15

As part of the traffic count program for this project, two (2) locations on Denning Drive, one south of Webster Avenue, and one south of Fairbanks Avenue were utilized in this study as vehicle classification count locations. Based on the 13 vehicle types, vehicle classification was aggregated into three primary vehicle types:

- Passenger Vehicles- Motorcycles, Cars, Vans, and Pickups;
- Medium Trucks- Buses and 2-Axle Single Unit Trucks;
- Heavy Trucks- 3- or 4-Axle Single Unit Trucks, 2-Axle Tractors (with 1- or 2-axle trailers), 3-Axle Tractors (with 2- or 3-axle trailers), and 5-, 6-, and 7-Axle Multi-Trailers.

Using these categories, percentages for overall trucks (medium and heavy) were determined for the peak and daily traffic conditions.

Traffic design characteristics for the project were developed from the traffic count data collected in the field and from the Department's Roadway Characteristics Inventory (RCI). These design characteristics include design hour traffic flow factor (K_{30}), directional distribution factor (D), and daily truck factor (T_{daily}).

Existing travel characteristics and information from the FDOT RCI database for

the project corridor were used to develop the Design Characteristics. Based on 24-hour approach and 72-hour classification counts, average peak traffic flow (K measured) and peak traffic direction (D measured) were obtained. Table 6-2 shows the 24-hour and 72-hour traffic count analysis respectively, which include the measured K, D and adjusted AADT. The adjusted AADT was obtained by applying the Seasonal and Axle Adjustment Factors.

An average estimated value for K_{30} (design hour demand for the 30th highest hour) of 8.82% for SR 15/600 (US 17/92) was developed by multiplying the K (measured) value of 8.41% by an adjustment factor of 1.05 (ratio of the median seasonal factor for the highest 13 weeks (peak season) and the median seasonal factor for the lowest 13 weeks (non-peak season)). An average estimated value for K_{30} of 11.25% for Denning Drive was developed, while an average estimated value for K_{30} of 9.29% for the side streets was developed. The estimated values of K_{30}, D, and T for the mainline and the side streets are summarized in Table 6-3.

The estimated K_{30}, measured D, and T factors for SR 15/600 (US 17/92) were compared with the RCI data provided in the SR 15/600 (US 17/92) DDTM. As shown in Table 6-3, the average estimated K_{30} for US 17/92 (8.82%) is slightly lower than the RCI K_{30} value of 8.88%, but both K_{30} values (estimated and RCI) are lower than the acceptable range of K_{30} (9.20% to 11.50%) for an urban arterial recommended in the ***Design Traffic Procedure Handbook***. It is recommended, therefore, to use a K_{30} value of 8.88% for all three State Roadways such as SR 15/600 (US 17/92), SR 426 (Fairbanks Avenue), and SR 423 (Lee Road). The same observation was made for all the side streets and Denning Drive, which resulted in recommending the same K_{30} value of 9.20% within the study area.

In recommending the design characteristics for roadways within the study area, the average observed D values of 53.23% and 55.61% respectively for SR 15/600 (US 17/92) and the side streets were lower than the D value of 58.08% obtained from the RCI database, therefore, a D value of 58.08% is recommended for all three State Roadways. For the side streets, it was recommended to use the observed D Value that was 55.61%

Table 6-2 SR 15/600 (US 17/92) 24-Hour and 72-Hour Traffic Count Analysis

Roadway Segment	Existing ADT	Pk. Hr. Vol.	K Measured	D Measured	Pk. Dir.	Axle Factor	Seasonal Factor	Adjusted AADT*
SR 15/600 (US 17/92)								
Norfolk Ave to SR 527 (Orange Avenue)	31,730	2,775	0.087	0.500	NB	0.99	1.00	31,400
SR 527 (Orange Ave.) to Minnesota Avenue	30,955	2,787	0.090	0.494	NB	0.99	1.00	30,600
Minnesota Avenue to SR 426 (Fairbanks)	34,110	2,740	0.080	0.525	NB	0.99	1.00	33,800
SR 426 (Fairbanks) to Morse Boulevard	35,012	3,080	0.088	0.515	NB	0.99	1.00	34,700
Morse Boulevard to Gay Road	42,204	3,338	0.079	0.543	NB	0.99	1.00	41,800
Gay Road to Webster Avenue	37,603	3,669	0.098	0.528	NB	0.99	1.00	37,200
Webster Avenue to SR 423 (Lee Road)	48,856	4,293	0.088	0.526	NB	0.99	1.00	48,400
SR 423 (Lee Road) to Solana Avenue	47,256	3,485	0.074	0.569	NB	0.99	1.00	46,800
Solana Avenue to Park Avenue	50,283	3,669	0.073	0.590	NB	0.99	1.00	49,800
Average			**0.084**		**0.532**			
Denning Drive								
Orange Ave. to SR 426 (Fairbanks Ave.)	6,013	695	0.116	0.587	NB	0.99	1.00	6,000
SR 426 (Fairbanks Ave.) to Webster Ave.	8,607	855	0.099	0.565	NB	0.99	1.00	8,500
Average			**0.107**		**0.576**			
Side streets								
SR 527 (Orange Ave.) W of SR 15/600	14,974	1,599	0.107	0.53	EB	0.99	1.00	14,800
SR 527 (Orange Ave.) E of SR 15/600	19,886	1,600	0.080	0.531	WB	0.99	1.00	19,700
Minnesota Avenue W of SR 15/600	8,472	720	0.085	0.554	EB	0.99	1.00	8,400
Minnesota Avenue E of SR 15/600	6,684	656	0.098	0.544	EB	0.99	1.00	6,600
SR 426 (Fairbanks Ave.) W of SR 15/600	29,642	2,558	0.086	0.519	EB	0.99	1.00	29,300
SR 426 (Fairbanks Ave.) E of SR 15/600	29,150	2,157	0.074	0.505	WB	0.99	1.00	28,900
Morse Boulevard E of SR 15/600	8,240	655	0.079	0.583	WB	0.99	1.00	8,200
Gay Road W of SR 15/600	4,134	368	0.089	0.505	EB	0.99	1.00	4,100
Gay Road E of SR 15/600	3,944	596	0.151	0.636	EB	0.99	1.00	3,900
Webster Avenue W of SR 15/600	8,186	605	0.074	0.580	EB	0.99	1.00	8,100
Webster Avenue E of SR 15/600	14,854	1,416	0.095	0.577	WB	0.99	1.00	14,700
SR 423 (Lee Road) W of SR 15/600	46,600	2,598	0.056	0.547	EB	0.99	1.00	46,100
Solana Avenue E of SR 15/600	3,638	215	0.059	0.530	EB	0.99	1.00	3,600
Park Avenue E of SR 15/600	10,930	1,130	0.103	0.643	WB	0.99	1.00	10,800
Average			**0.088**		**0.556**			

* Measured Adjusted AADT= Measured ADT * Axle Factor * Seasonal Factor

Table 6-3 SR 15/600 (US 17/92) Roadway Characteristics Summary

Roadway Segment	K Measured	Estimated K_{30}*	D Measured	T daily Measured	T peak Measured	FDOT RCI Database		
						K_{30}	D	T_{daily}
SR 15/600 (US 17/92)								
Norfolk Ave to SR 527 (Orange Ave.)	8.75%	9.20%	50.00%	N/A	N/A	8.88%	58.08%	3.13%
SR 527 (Orange) to Minnesota Ave.	9.00%	9.50%	49.38%	N/A	N/A	8.88%	58.08%	3.13%
Minnesota Ave. to SR 426 (Fairbanks)	8.03%	8.40%	52.54%	N/A	N/A	8.88%	58.08%	3.13%
SR 426 (Fairbanks) to Morse Blvd.	8.80%	9.20%	51.50%	N/A	N/A	8.88%	58.08%	3.13%
Morse Boulevard to Gay Road	7.91%	8.30%	54.26%	N/A	N/A	8.88%	58.08%	3.13%
Gay Road to Webster Avenue	9.76%	10.20%	52.79%	N/A	N/A	8.88%	58.08%	3.13%
Webster Avenue to SR 423 (Lee Rd.)	8.79%	9.20%	52.64%	N/A	N/A	8.88%	58.08%	3.13%
SR 423 (Lee Road) to Solana Ave.	7.37%	7.70%	56.88%	N/A	N/A	8.88%	58.08%	3.13%
Solana Avenue to Park Avenue	7.30%	7.70%	59.03%	N/A	N/A	8.88%	58.08%	3.13%
Average	**8.41%**	**8.82%**	**53.23%**			**8.88%**	**58.08%**	**3.13%**
Denning Drive								
Orange Ave. to SR 426 (Fairbanks)	11.56%	12.10%	58.70%	3.90%	3.90%	N/A	N/A	N/A
SR 426 (Fairbanks) to Webster Ave.	9.93%	10.40%	56.50%	5.20%	5.80%	N/A	N/A	N/A
Average	**10.75%**	**11.25%**	**57.60%**	**4.55%**	**4.85%**			
Side streets								
SR 527 (Orange) W of SR 15/600	10.68%	11.20%	53.00%	N/A	N/A	N/A	N/A	N/A
SR 527 (Orange) E of SR 15/600	8.05%	8.40%	53.10%	N/A	N/A	N/A	N/A	N/A
Minnesota Avenue W of SR 15/600	8.50%	8.90%	55.42%	N/A	N/A	N/A	N/A	N/A
Minnesota Avenue E of SR 15/600	9.81%	10.30%	54.42%	N/A	N/A	N/A	N/A	N/A
SR 426 (Fairbanks) W of SR 15/600	8.63%	9.10%	51.88%	N/A	N/A	8.88%	58.08%	10.66%
SR 426 (Fairbanks) E of SR 15/600	7.40%	7.80%	50.49%	N/A	N/A	8.88%	58.08%	10.66%
Morse Boulevard E of SR 15/600	7.95%	8.30%	58.32%	N/A	N/A	N/A	N/A	N/A
Gay Road W of SR 15/600	8.90%	9.30%	50.54%	N/A	N/A	N/A	N/A	N/A
Gay Road E of SR 15/600	15.11%	15.90%	63.59%	N/A	N/A	N/A	N/A	N/A
Webster Avenue W of SR 15/600	7.39%	7.80%	58.02%	N/A	N/A	N/A	N/A	N/A
Webster Avenue E of SR 15/600	9.53%	10.00%	57.70%	N/A	N/A	N/A	N/A	N/A
SR 423 (Lee Road) W of SR 15/600	5.58%	5.90%	54.66%	N/A	N/A	8.88%	58.08%	1.26%
Solana Avenue E of SR 15/600	5.91%	6.20%	53.02%	N/A	N/A	N/A	N/A	N/A
Park Avenue E of SR 15/600	10.34%	10.90%	64.34%	N/A	N/A	N/A	N/A	N/A
Average	**8.84%**	**9.29%**	**55.61%**					

* Using an adjustment factor of 1.05

The Truck percentage (T) for daily and peak condition on Denning Drive obtained from the 72-hour classification counts data are shown in Table 6-3. The average T_{daily} was calculated to be 4.55%, while the average T_{peak} is calculated to be 4.85%. No classification counts were taken along SR 15/600 (US 17/92), nor along any of the side streets. Therefore, the T_{daily} factor of 3.13% (obtained from FDOT RCI database) is recommended for use in this analysis for SR 15/600 (US 17/92) and all side streets. Table 6-4 provides a summary of the recommended design characteristics (K_{30}, D, and T factors) to be used in the analysis.

Based on the review of current and historical statistics, the recommended technical parameters represent current travel patterns within the area. As development and growth continue within the study area, it can be expected that travel characteristics for the study area will vary slightly. Based on the current data, the design characteristics provided in Table 6-4 indicate the best indication of travel patterns within the study area.

Table 6-4 SR 15/600 (US 17/92) Recommended Design Characteristics

Roadway Segment	Recommended		
	K_{30}	D	T_{daily}
SR 15/600 (US 17/92)	8.80%	58.08%	3.13%
SR 426 (Fairbanks Avenue)	8.80%	58.08%	10.66%
SR 423 (Lee Road)	8.80%	58.08%	1.26%
Denning Drive	9.20%	55.61%	4.55%
Side Streets	9.20%	55.61%	3.13%

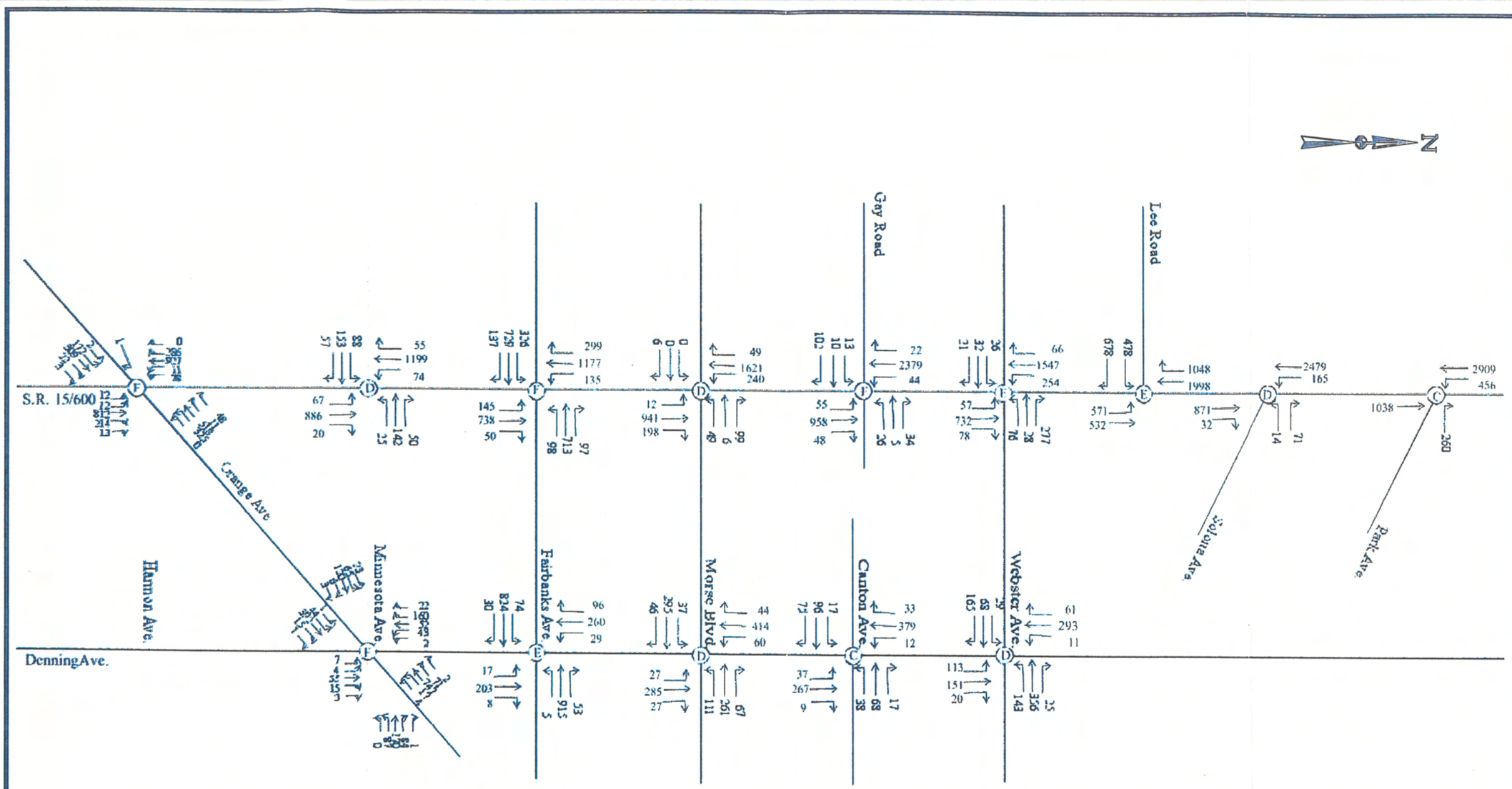
6.2 Existing Traffic Analysis

The existing A.M. and P.M. peak hour turning movements are shown in Figures 6-1 and 6-2, respectively. The turning movements shown in Figure 6-2 (the existing P.M. Peak Hour Turning Movements for the year of 2001) were used to assist in the future year analysis.

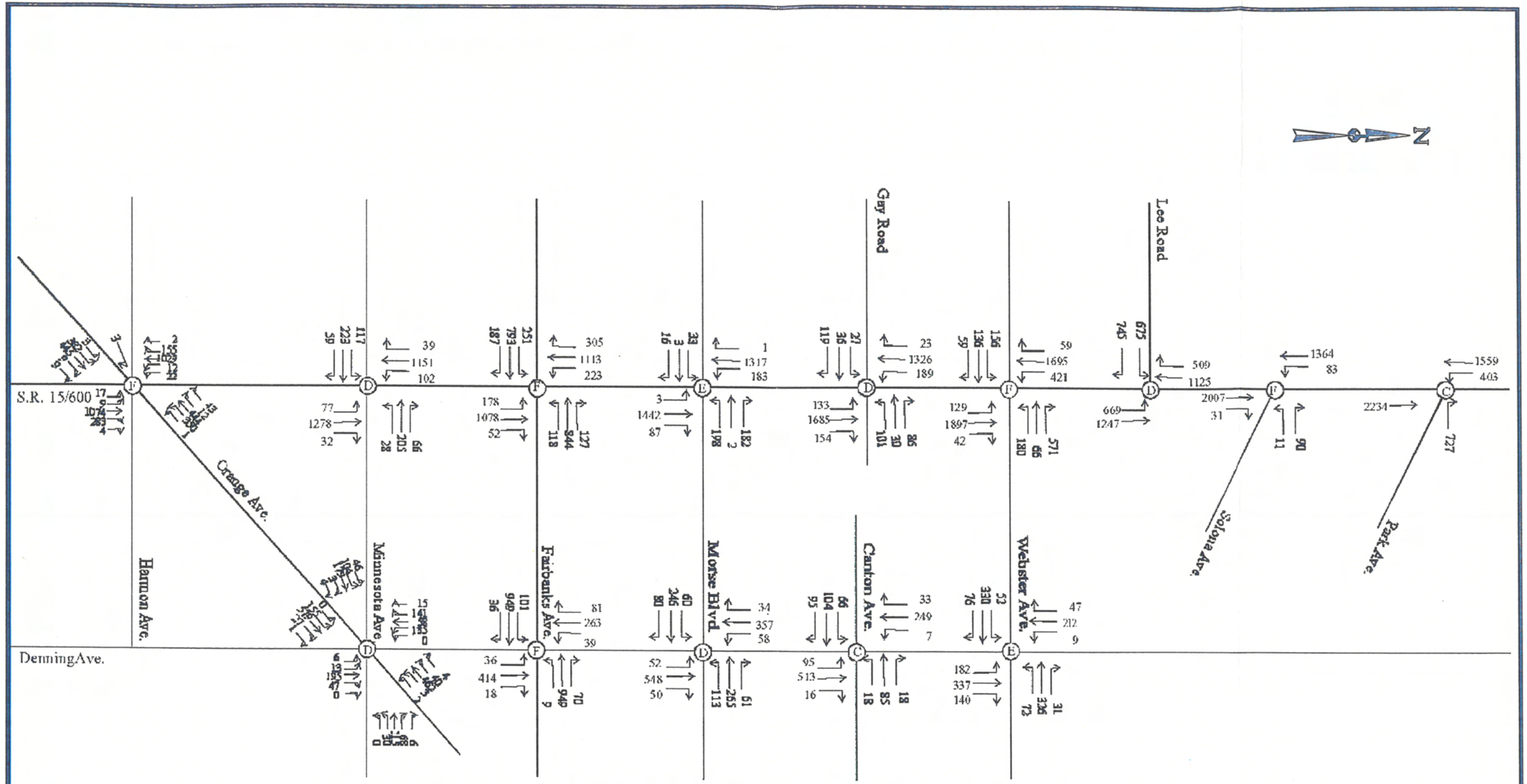
6.2.1 LEVEL OF SERVICE ANALYSIS

The Level of Service (LOS) analysis of current intersections was performed using the signal timing data provided by the City of Winter Park. For the LOS analysis of roadway segments, the analysis was conducted to P.M. peak hour peak directions. The capacities were based on the 2002 ***FDOT Quality/Level of Service Handbook*** and ***ARTPLAN*** (2002 Conceptual Planning Analysis) Spreadsheets.

Levels of service for the study area were determined using the procedures as outlined in the Transportation Research Board's *Highway Capacity Manual* (HCM 2000). The most recent version of Highway Capacity Software (HCS 2000) was used for evaluating signalized and un-signalized intersections within the project limits. In addition, SYNCRO signal timing software was used to analyze both 6-leg intersections within the study limits (US 17/92 at Orange Avenue/Harmon Avenue and Denning Drive at Orange Avenue/Minnesota Avenue). The procedure used in SYNCRO is also based on the HCM 2000.



Year 2001 Existing A.M. Peak Hour Turning Movements
S R 600/15 (US 17/92)
Norfolk Ave. To Monroe Street



Year 2001 Existing P.M. Peak Hour Turning Movements
S R 600/15 (US 17/92)
Norfolk Ave. To Monroe Street

The roadway segments LOS Analysis was performed for P.M. peak hour peak direction conditions. The capacities for the peak hour conditions were based on 2002 *FDOT Level of Service Handbook* and 2002 ARTPLAN Spreadsheet.

Existing Intersection Level of Service Analysis

The existing P.M. peak hour turning movement volumes shown in Figure 6-2 were used for intersection analysis using standard HCM procedures. The DDHV's obtained by applying recommended K_{30} and D factors to the AADT's were not computed for existing conditions. Intersection signal timings and phasing information was obtained from the City of Winter Park. Figure 6-2 also shows the existing P.M. peak hour intersection LOS.

For actuated signals, the signal timings are dynamic depending on demand and vehicle arrival pattern. The cycle lengths and timings vary based on the demand. Therefore, caution was applied in using the maximum time associated with the individual phases especially at intersections where the side street carries less traffic.

Based on the existing intersection analysis, the following intersections operate at LOS F:

Existing A.M. Peak Hour

- SR 15/600 (US 17/92) at Orange Avenue
- SR 15/600 (US 17/92) at Fairbanks Avenue
- SR 15/600 (US 17/92) at Gay Road
- Denning Drive at Orange Avenue/Minnesota Avenue

Existing P.M. Peak Hour

- SR 15/600 (US 17/92) at Orange Avenue
- SR 15/600 (US 17/92) at Fairbanks Avenue
- SR 15/600 (US 17/92) at Webster Avenue
- SR 15/600 (US 17/92) at Solana Avenue (un-signalized)
- Denning Drive at Fairbanks Avenue

Roadway Operational Level of Service Analysis

The roadway operational level of service analysis was performed by comparing the P.M. peak hour/peak direction volumes for individual roadway segments shown in Table 6-5, against the peak-hour peak-direction capacities.

Table 6-5

S.R. 15/600 (US 17/92) PD&E and Design
2001 Existing Roadway P.M. Peak Hour Peak Direction Level of Service

Roadway	Adopted LOS Standard	Peak Directional NL	Total Pk. Hr. Vol.	Pk. Hr. Vol. NB/WB	Pk. Hr. Vol. SB/EB	Estimated LOS	LOS A Capacity	LOS B Capacity	LOS C Capacity	LOS D Capacity	LOS E Capacity
S.R. 15/600 (US 17/92)											
Norfolk Ave to SR 527 (Orange Avenue)	E	2	2,775	1,387	1,388	D	**	220	1,360	1,710	1,800
SR 527 (Orange Avenue) to Minnesota Avenue	E	2	2,787	1,454	1,333	D	**	220	1,360	1,710	1,800
Minnesota Avenue to SR 426 (Fairbanks Avenue)	E	2	2,740	1,385	1,355	D	**	220	1,360	1,710	1,800
SR 426 (Fairbanks Avenue) to Morse Boulevard	E	2	3,080	1,494	1,586	D	**	220	1,360	1,710	1,800
Morse Boulevard to Gay Road	E	2	3,338	1,815	1,524	F	**	220	1,360	1,710	1,800
Gay Road to Webster Avenue	E	2	3,669	1,933	1,736	F	**	220	1,360	1,710	1,800
Webster Avenue to SR 423 (Lee Road)	E	3	4,293	2,270	2,023	D	**	340	2,110	2,570	2,710
SR 423 (Lee Road) to Solona Avenue	E	3	3,485	1,980	1,505	C	**	340	2,110	2,570	2710
Solona Avenue to Park Avenue	E	3	3,669	2,166	1,503	D	**	340	2,110	2,570	2710
Denning Drive											
Orange Ave. to SR 426 (Fairbanks Ave.)	E	2	695	408	287	B	**	**	1,120	1,620	1,720
SR 426 (Fairbanks Ave.) to Webster Ave.	E	2	855	483	372	B	**	**	1,120	1,620	1,720
Side Streets											
SR 527 (Orange Avenue) - W of SR 15/600	E	2	1,599	751	848	C	**	220	1,360	1,710	1,800
SR 527 (Orange Avenue) - E of SR 15/600	E	2	1,600	850	750	C	**	220	1,360	1,710	1,800
Minnesota Avenue - W of SR 15/600	E	1	720	321	399	B	**	**	480	760	810
Minnesota Avenue - E of SR 15/600	E	1	656	299	357	B	**	**	480	760	810
SR 426 (Fairbanks Avenue) - W of SR 15/600	E	2	2,558	1,327	1,231	C	**	220	1,360	1,710	1,800
SR 426 (Fairbanks Avenue) - E of SR 15/600	E	2	2,157	1,089	1,068	C	**	220	1,360	1,710	1,800
Morse Boulevard E of SR 15/600	E	1	655	382	273	B	**	**	480	760	810
Gay Road - W of SR 15/600	E	1	368	186	182	B	**	**	480	760	810
Gay Road E of SR 15/600	E	1	596	217	379	B	**	**	480	760	810
Webster Avenue - W of SR 15/600	E	1	605	254	351	B	**	**	480	760	810
Webster Avenue - E of SR 15/600	E	1	1,416	817	599	F	**	**	480	760	810
SR 423 (Lee Road) - W of SR 15/600	E	2	2,598	1,178	1,420	D	**	220	1,360	1,710	1,800
Solona Avenue E of SR 15/600	E	1	215	101	114	B	**	**	480	760	810
Park Avenue - E of SR 15/600	E	1	1,130	727	403	D	**	**	480	760	810

Source: 2002 Florida DOT's Quality/LOS Handbook, Table 4-7

The peak hour peak directional capacities for all the roadway segments were obtained from Table 4-7 of 2002 *FDOT Quality/Level of Service Handbook.* Table 6-5 also includes the adopted LOS standard, number of lanes for peak direction, and adopted LOS capacities for all the roadway segments within the study area.

Based on the comparison of peak hour peak directional volumes with the corresponding P.M. peak hour peak direction capacities in Table 6-4, only three roadway segments operate below their adopted LOS standard:

- SR 15/600 (US 17/92), between Morse Boulevard and Gay Road – LOS F
- SR 15/600 (US 17/92), between Gay Road and Webster Avenue – LOS F
- Webster Avenue at East of SR 15/600 (US 17/92) – LOS F

6.3 Traffic Volume Projections

Based on information provided by the Department, the following periods were used to forecast design traffic volumes for the SR 15/600 (US 17/92) and Denning Drive corridor:

- Existing Year- 2001
- Opening Year- 2005
- Mid-Design Year- 2015
- Design Year- 2025

Design traffic volumes were developed for the no build alternatives. A description of each of the build alternatives is provided below. It should be noted that Build Alternative 5 was considered the most viable alternative and is presented in more detail in later Sections of this PE Report.

- Build Alternative 1 – SR 15/600 (US 17/92) as a 4-Lane divided roadway with full median openings at signalized intersections.

- Build Alternative 2 – SR 15/600 (US 17/92) as a 6-Lane divided roadway throughout the study limits of the project.

- Build Alternative 3 – A one-way pair scenario with SR 15/600 (US 17/92) as a 4-Lane in the southbound direction, while Denning Drive being a 4-lane in the northbound direction.

- Build Alternative 4 – Implementation of the Park Avenue signal relocation to Solana Avenue and re-alignment of Elvin Avenue with Solana/Denning Drive. Solana would remain as a 2-lane

facility. The existing southbound left turn lane from SR 15/600 (US 17/92) to Park Avenue would be eliminated while the existing westbound lane merging to SR 15/600 (US 17/92) northbound would be remained. The SR 15/600 (US 17/92) and Solana intersection would be fully signalized after realigning Elvin Avenue.

- Build Alternative 5 – Extension of Lee Road from SR 15/600 (US 17/92) to Denning Drive. Lee Road would be implemented as a 4-lane divided roadway, in addition to the improvements listed in Build Alternative 4.

The No-Build alternative includes the existing roadway geometry along the SR15/600 (US 17/92) corridor, which is a 5-Lane undivided roadway with a two-way center left turn lane. The difference between the No Build and the Build Alternative 1 is that Build Alternative 1 has a divided median with turn lanes at signalized intersections.

The FDOT Year 2002-2006 adopted Work Program was reviewed for any roadway improvements planned within the study area of the project. In addition, the Transportation Improvement Program (TIP) for fiscal year 2001/02-2005/06, obtained from METROPLAN ORLANDO, was reviewed for any roadway improvements programmed within the study area of the project. There are no roadway improvements planned or programmed within the vicinity of the project study area.

6.3.1 FUTURE CORRIDOR TRAVEL DEMAND

The development of traffic projections for SR 15/600 (US 17/92) and other roadways within the study area requires the examination of historical traffic growth, proposed development and a basic understanding of traffic circulation patterns and characteristics of the study area. In arriving at the volume forecasts for SR 15/600 (US 17/92), Denning Drive, and other roadways, various growth rates were examined. The following sections discuss how the future corridor travel demand was determined.

Trends Analysis

The trends analysis was performed for the study area roadways using historical count data information from Orange County and FDOT. Based on historical data, future growth rates were calculated using the least square linear regression method. The FDOT defines an acceptable Historic Trends Growth Rate as that which has an R square value of 75.00% or greater. The trends analysis resulted in average growth rates of 1.55% for SR 15/600 (US 17/92), and an average growth rate of 1.70% for the side streets including Lee Road, Fairbanks Avenue, and Orange Avenue. There were no historical counts available for Denning Drive;

therefore the trend analysis was not performed for Denning Drive. The R square value obtained for SR 15/600 (US 17/92) was very low (for example, 60.5% on SR 15/600 (US 17/92) 0.2 miles south of SR 423 and 49.8% in SR 15/600 (US 17/92) 0.33 miles north of SR 423), so the growth rates obtained from the trends analysis for SR 15/600 (US 17/92) are not recommended.

6.3.2 Florida Standard Urban Transportation Model Structure (FSUTMS)

The most recent Orlando Area Urban Transportation Study (OUATS) 2020 FSUTMS model (cost feasible network) was used in the modeling efforts for forecasting future volumes along SR 15/600 (US 17/92) for the no build and build alternatives which codes SR 15/600 (US 17/92) as a four lane facility. The model runs were performed for the year 2020 and the results were compared with the base year 1990 OUATS model volumes in order to calculate the growth rates for each alternative. Following is a description of each of the model runs performed for this study.

1990 OUATS Model: The validated OUATS Model for the year of 1990 was simulated to project annual growth rates between 1990 and 2020. The roadway segments of SR 15/600 (US 17/92) between Lee Road and Orange Avenue were coded as a 4 lane undivided urban arterial while the segments between from Lee Road to Park Avenue were coded as a 6 lane divided arterial.

For Denning Drive, the 1990 model was presented as a 2 lane urban collector from Park Avenue and Orange Avenue. SR 15/600 (US 17/92) carries approximately 43,600 vpd south of Lee Road, and approximately 62,100 vpd north of Lee Road. Denning Drive carries approximately 10,300 vpd through the section parallel to SR 15/600 (US 17/92).

6.3.3 No Build Alternative

The year 2020 model run for the No Build alternative was performed with coding SR 15/600 (US 17/92) as a 4-Lane undivided arterial from Norfolk Avenue to Lee Road. Under this alternative, SR 15/600 (US 17/92) carries approximately 38,600 vpd south of Lee Road, and approximately 48,300 vpd north of Lee Road. Denning Drive carries approximately 27,600 vpd through the section parallel to SR 15/600 (US 17/92).

6.3.4 Build Alternatives

Build Alternative 1: This alternative was not specifically coded in the

FSUTMS model. Therefore, the results from the No-Build alternative were used.

Build Alternative 2: The year 2020 model run for the Build Alternative 2 was performed with coding SR 15/600 (US 17/92) as a 6-Lane divided arterial from Norfolk Avenue to Lee Road. Under this alternative, SR 15/600 (US 17/92) carries approximately 52,100 vpd south of Lee Road, and approximately 50,400 vpd north of Lee Road. Denning Drive carries approximately 20,900 vpd through the section parallel to SR 15/600 (US 17/92).

Build Alternative 3: The year 2020 model run for the Build Alternative 3 was performed with coding SR 15/600 (US 17/92) as a 4-Lane one-way facility, in the southbound direction, from Solana Road to Orange Avenue, and coding Denning Drive as a 4-Lane one-way facility, in the northbound direction, from Orange Avenue to Solana Road. Under this alternative, SR 15/600 (US 17/92) carries approximately 40,500 vpd south of Lee Road, and approximately 41,200 vpd north of Lee Road. Denning Drive carries approximately 24,200 vpd through the section parallel to SR 15/600 (US 17/92).

Build Alternative 4: The year 2020 model run for the Build Alternative 4 was performed with coding the realignment of Solana Avenue and relocating the signal from Park Avenue to Solana, and closing the median at Park Avenue. Under this alternative, SR 15/600 (US 17/92) carries approximately 40,200 vpd south of Lee Road, and approximately 46,500 vpd north of Lee Road. Denning Drive carries approximately 27,500 vpd through the section parallel to SR 15/600 (US 17/92).

Build Alternative 5: The year 2020 model run for the Build Alternative 5 was performed with coding the realignment of Solana Avenue and relocating the signal from Park Avenue to Solana, and closing the median at Park Avenue, in addition to extending Lee Road to Denning Avenue. Under this alternative, SR 15/600 (US 17/92) carries approximately 35,700 vpd south of Lee Road, and approximately 48,600 vpd north of Lee Road. Denning Drive carries approximately 28,700 vpd through the section parallel to SR 15/600 (US 17/92).

Table 6-6 presents a comparison of the model AADT and annual growth rates, for each alternative, between 1990 and 2020. In the 2020 OUATS, Interstate 4 is coded as an 8 lane freeway including a 2 lane High Occupancy Vehicle (HOV) lanes resulting in a 65% increase in capacity improvements are compared to 1990 model. Other major roadways such as SR 436 (Semoran Boulevard), SR 423 (Lee Road), and SR 434 are coded as a 6 lane divided arterials. These capacity increases resulted in negative growth rates on segments of SR 15/600 (US 17/92). On Denning Drive, the growth rates ranged from 2.9% to 5.1%. The 2020 OUATS had Denning Drive coded as a 4 lane collector from 2 lane collector in 1990.

Based on a comparison of the trends growth rates, the model growth rates and using engineering judgment recommended growth rates were estimated for each alternative. Table 6-7 presents the recommended annual growth rates of each segment on SR 15/600 (US 17/92), Denning Drive, and the side streets for No Build and four (4) Build Alternatives.

Table 6-6
S.R. 15/600 (US 17/92) PD &E and Design
Model AADT and Annual Growth Rate Comparisons

Roadways	Segments	1990 OUATS AADT	2020 OUATS									
			No Build		Alt 2		Alt 3		Alt 4		Alt 5	
			AADT	Annual Growth Rates	AADT	Annual Growth Rates	AADT	Annual Growth Rates	AADT	Annual Growth Rates	AADT	Annual Growth Rates
US17/92	Norfolk Ave to SR 527 (Orange Avenue)	29,900	43,000	1.5%	44,700	1.6%	33,600	0.4%	43,300	1.5%	43,700	1.5%
	SR 527 (Orange Avenue) to Minnesota Avenue	39,100	39,100	0.0%	5,400	-2.9%	37,000	-0.2%	39,600	0.0%	40,900	0.2%
	Minnesota Avenue to SR 426 (Fairbanks Avenue)	36,800	37,300	0.0%	5,240	-2.9%	34,100	-0.2%	37,500	0.1%	39,200	0.2%
	SR 426 (Fairbanks Avenue) to Morse Boulevard	44,400	37,900	-0.5%	48,000	0.3%	41,200	-0.2%	37,500	-0.5%	37,800	-0.5%
	Morse Boulevard to Gay Road	45,000	33,400	-0.9%	41,600	-0.3%	41,800	-0.2%	34,800	-0.8%	36,300	-0.6%
	Gay Road to Webster Avenue	41,500	31,200	-0.8%	41,400	0.0%	38,900	-0.2%	30,900	-0.9%	35,200	-0.5%
	Webster Avenue to SR 423 (Lee Road)	43,600	38,600	-0.4%	52,100	0.6%	40,500	-0.2%	40,200	-0.3%	35,700	-0.6%
	SR 423 (Lee Road) to Solona Avenue	62,100	48,300	-0.7%	50,400	-0.6%	41,200	-1.1%	46,500	-0.8%	48,600	-0.7%
	Solona Avenue to Park Avenue	67,400	65,900	-0.1%	60,800	-0.3%	34,900	-1.6%	70,500	0.2%	72,600	0.3%
	Total/Average	409,800	374,700	**-0.3%**	349,640	**-0.5%**	343,200	**-0.5%**	380,800	**-0.2%**	390,000	**-0.2%**
DENNING AVE.	Orange Ave. to Minnesota Ave.	11,200	21,100	2.9%	13,600	0.7%	17,500	1.9%	20,700	2.8%	6,100	-1.5%
	Minnesota Ave. to SR 426 (Fairbanks Ave.)	14,900	27,600	2.8%	20,400	1.2%	19,700	1.1%	27,000	2.7%	20,500	1.3%
	SR 426 (Fairbanks Ave.) to Morse Blvd.	12,400	32,000	5.3%	29,100	4.5%	26,400	3.8%	31,500	5.1%	32,200	5.3%
	Morse Blvd. to Canton Ave.	12,800	31,300	4.8%	26,900	3.7%	24,100	2.9%	30,700	4.7%	30,200	4.5%
	Canton Ave. to Webster Ave.	10,400	28,800	5.9%	26,400	5.1%	24,000	4.4%	56,700	14.8%	27,700	5.5%
	Webster Ave. to Solana Avenue	10,300	27,600	5.6%	20,900	3.4%	24,200	4.5%	27,500	5.6%	30,700	6.6%
	Solana Ave. to Park Ave.	8,500	11,500	1.2%	12,300	1.5%	17,100	3.4%	8,900	0.2%	14,600	2.4%
	Total/Average	80,500	179,900	**4.1%**	149,600	**2.9%**	153,000	**3.0%**	203,000	**5.1%**	162,000	**3.4%**
SIDE STREETS	SR 527 (Orange Avenue) - W of SR 15/600	47,200	46,800	0.0%	51,100	0.3%	48,000	0.1%	46,500	0.0%	46,200	-0.1%
	SR 527 (Orange Avenue) - E of SR 15/600	38,200	50,800	1.1%	41,800	0.3%	46,200	0.7%	50,400	1.1%	49,000	0.9%
	Minnesota Avenue - W of SR 15/600	6,300	7,400	0.6%	8,200	1.0%	6,300	0.0%	7,600	0.7%	7,600	0.7%
	Minnesota Avenue - E of SR 15/600	4,700	5,400	0.5%	5,500	0.6%	3,800	-0.6%	5,500	0.6%	5,300	0.4%
	SR 426 (Fairbanks Avenue) - W of SR 15/600	46,100	4,650	-3.0%	47,800	0.1%	50,200	0.3%	46,200	0.0%	45,300	-0.1%
	SR 426 (Fairbanks Avenue) - E of SR 15/600	39,200	37,300	-0.2%	38,700	0.0%	40,700	0.1%	39,300	0.0%	28,900	-0.9%
	Morse Boulevard - E of SR 15/600	3,500	4,700	1.1%	8,800	5.0%	9,100	5.3%	3,400	-0.1%	3,000	-0.5%
	Gay Road - E of SR 15/600	2,900	3,400	0.6%	4,400	1.7%	9,000	7.0%	7,300	5.1%	3,500	0.7%
	Webster Avenue - E of SR 15/600	7,900	12,600	2.0%	14,900	3.0%	9,800	0.8%	14,900	3.0%	6,400	-0.6%
	SR 423 (Lee Road) - W of SR 15/600	37,000	37,700	0.1%	39,400	0.2%	31,600	-0.5%	39,000	0.2%	44,200	0.6%
	Solona Avenue - E of SR 15/600	8,600	20,600	4.7%	11,100	1.0%	8,000	-0.2%	28,900	7.9%	23,000	5.6%
	Park Avenue - E of SR 15/600	15,400	17,100	0.4%	19,500	0.9%	21,500	1.3%	7,500	-1.7%	6,500	-1.9%
	Total/Average	257,000	248,450	**-0.1%**	291,200	**0.4%**	284,200	**0.4%**	296,500	**0.5%**	268,900	**0.2%**

Table 6-7
S.R. 15/600 (US 17/92) PD&E and Design
Recommended Annual Growth Rates

Roadways	Segments	No Build		Alt 2		Alt 3**		Alt 4		Alt 5	
		No. of Lanes	Annual Growth Rates	No. of Lanes	Annual Growth Rates	No. of Lanes	Annual Growth Rates	No. of Lanes	Annual Growth Rates	No. of Lanes	Annual Growth Rates
S.R. 15/600 (US17/92)	Norfolk Ave to SR 527 (Orange Avenue)	4	0.5%	6	1.4%	4	0.5%	4	0.5%	4	0.5%
	SR 527 (Orange Avenue) to Minnesota Avenue	4	0.5%	6	1.4%	4	0.5%	4	0.5%	4	0.5%
	Minnesota Avenue to SR 426 (Fairbanks Avenue)	4	0.5%	6	1.4%	4	0.5%	4	0.5%	4	0.5%
	SR 426 (Fairbanks Avenue) to Morse Boulevard	4	0.5%	6	0.7%	4	0.5%	4	0.5%	4	0.3%
	Morse Boulevard to Gay Road	4	0.5%	6	0.7%	4	0.5%	4	0.5%	4	0.3%
	Gay Road to Webster Avenue	4	0.5%	6	0.7%	4	0.5%	4	0.5%	4	0.3%
	Webster Avenue to SR 423 (Lee Road)	4	0.5%	6	0.7%	4	0.5%	4	0.5%	4	0.1%
	SR 423 (Lee Road) to Solona Avenue	6	0.5%	6	0.5%	6	0.5%	6	0.5%	6	0.5%
	Solona Avenue to Park Avenue	6	0.5%	6	0.5%	6	0.5%	6	0.7%	6	0.5%
DENNING DRIVE	Orange Ave. to Minnesota Ave.	4	3.0%	4	1.0%	4	1.5%	4	2.8%	4	2.8%
	Minnesota Ave. to SR 426 (Fairbanks Ave.)	4	3.0%	4	1.0%	4	1.5%	4	2.8%	4	2.8%
	SR 426 (Fairbanks Ave.) to Morse Blvd.	4	5.4%	4	4.2%	4	3.8%	4	5.3%	4	5.3%
	Morse Blvd. to Canton Ave.	4	5.4%	4	4.2%	4	3.8%	4	5.3%	4	5.5%
	Canton Ave. to Webster Ave.	4	5.4%	4	4.2%	4	3.8%	4	5.3%	4	5.5%
	Webster Ave. to Lee Road	4	3.9%	4	2.5%	4	3.9%	4	2.9%	4	7.2%
	Lee Road to Solana Ave.	4	3.9%	4	2.5%	4	3.9%	4	2.9%	4	6.0%
	Solana Ave. to Park Ave.	4	3.9%	4	2.5%	4	3.9%	4	2.9%	4	4.2%
SIDE STREETS	SR 527 (Orange Avenue) - W of SR 15/600	4	0.5%	4	0.3%	4	0.4%	4	0.5%	4	0.4%
	SR 527 (Orange Avenue) - E of SR 15/600	4	0.5%	4	0.3%	4	0.4%	4	0.5%	4	0.4%
	Minnesota Avenue - W of SR 15/600	2	0.5%	2	0.8%	2	0.5%	2	0.6%	2	0.6%
	Minnesota Avenue - E of SR 15/600	2	0.5%	2	0.8%	2	0.5%	2	0.6%	2	0.6%
	SR 426 (Fairbanks Avenue) - W of SR 15/600	3	0.5%	3	0.6%	3	0.2%	3	0.0%	3	0.0%
	SR 426 (Fairbanks Avenue) - E of SR 15/600	3	0.5%	3	0.6%	3	0.2%	3	0.0%	3	0.0%
	Morse Boulevard - E of SR 15/600	2	1.1%	2	5.0%	2	5.3%	2	-0.1%	2	-0.5%
	Gay Road - W of SR 15/600	2	0.8%	2	2.4%	2	8.5%	2	2.8%	2	1.2%
	Gay Road - E of SR 15/601	2	0.8%	2	2.4%	2	8.5%	2	2.8%	2	1.2%
	Webster Avenue - W of SR 15/600	2	1.9%	2	2.8%	2	2.1%	2	2.8%	2	-0.7%
	Webster Avenue - E of SR 15/600	2	1.9%	2	2.8%	2	2.1%	2	2.8%	2	-0.7%
	SR 423 (Lee Road) - W of SR 15/600	4	0.1%	4	0.2%	4	0.2%	4	0.2%	4	0.6%
	SR 423 (Lee Road) - E of SR 15/600*	-	-	-	-	-	-	-	-	4	0.6%
	Solona Avenue - E of SR 15/600	2	4.7%	2	1.0%	2	0.2%	2	7.9%	2	5.6%
	Park Avenue - E of SR 15/600	2	0.4%	2	0.9%	2	1.3%	2	-1.7%	2	-0.2%

* For only Alternative Five.

**S.R. 15/600 and Denning Drive are 4-lane one-way pairs.

6.3.5 DESIGN TRAFFIC FACTORS

The traffic forecast for the opening year 2005, mid-design year 2015 and design year 2025 were obtained by applying the annual growth rates presented in Table 6-7 to the existing traffic volumes using a straight line projection. The following sections present the design volume forecasts for the No-Build and Build Alternative 5 which was considered the most viable alternative for the SR 15/600 (US 17/92) PD&E Study. Alternatives 2, 3, and 4 were eliminated from further study.

6.3.6 NO-BUILD AND BUILD TRAFFIC FORECASTS

Figures 6-3 and 6-4 illustrate estimated existing and projected average annual daily traffic (AADT) volumes for opening year 2005, mid-design year 2015 and design year 2025, for the No Build and Build Alternatives, respectively.

6.3.7 DESIGN HOUR VOLUMES AT THE INTERSECTIONS

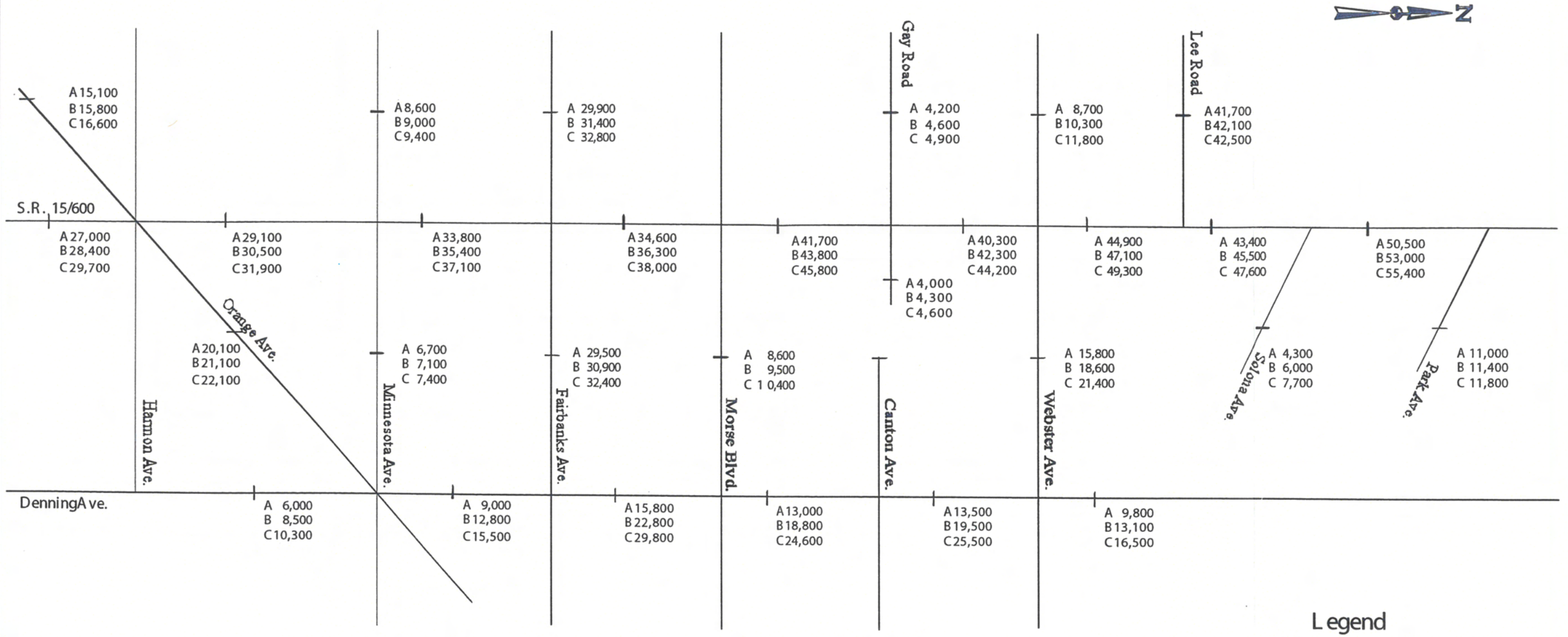
The design hour volumes (DHV's) for the intersections were developed for the No Build and Build Alternative 5 utilizing the TURNS-5 Spreadsheets. The outputs of the spreadsheets were examined and manual adjustments were conducted to eliminate unacceptable turning movement projections.

Directional Design Hourly Volumes (DDHV) depicted in Figures 6-5 and 6-6 for the No Build and Build Alternative 5 respectively represent an application of K30 and D factors (summarized in Table 6-4) to the AADT volumes.

6.4 Level of Service

A level of Service (LOS) analysis was performed for the No-Build and Build Alternative 5. Level of Service for the existing conditions were previously provided on Figures 6-1 and 6-2

This section presents the results of the operational analyses for the future No-Build and Build Alternative 5. Conditions were analyzed using the most current adopted procedures as outlined in the Transportation Research Board's Highway Capacity Manual (HCM 2000) report.



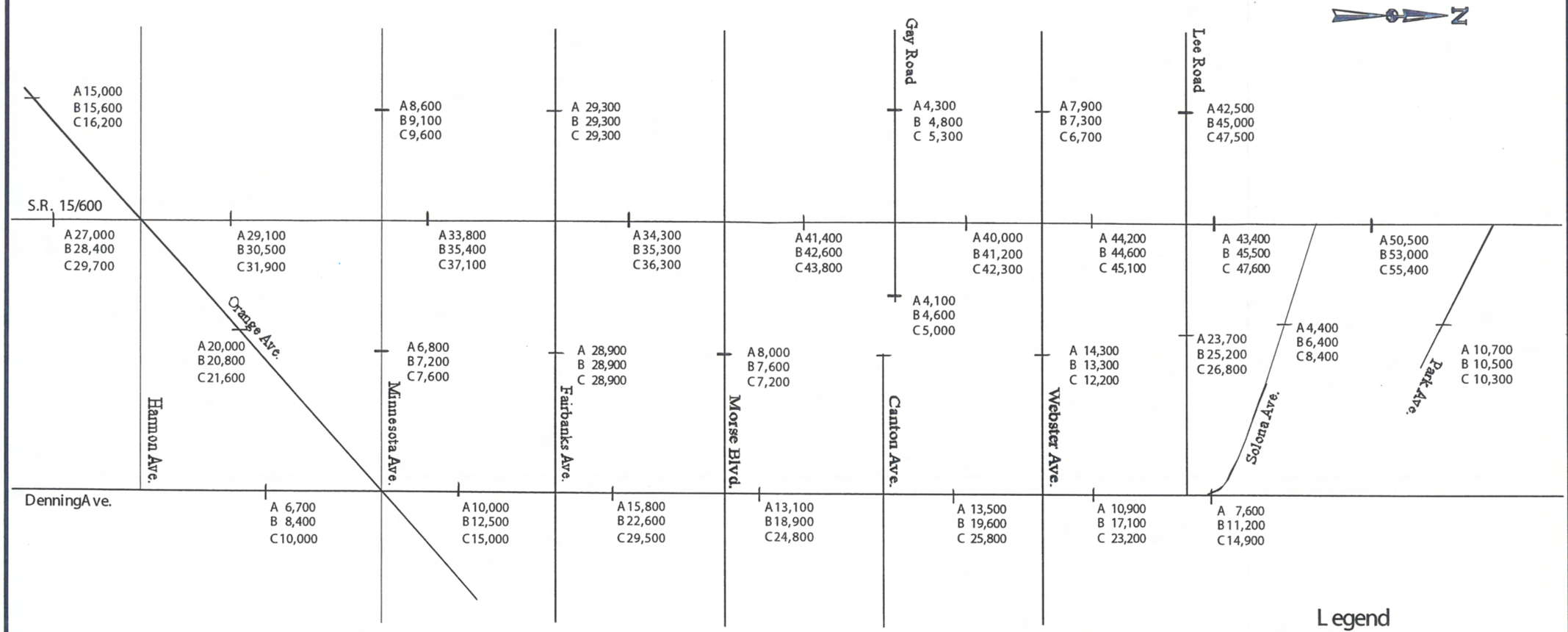
Legend

A-2005 Opening Year AADT

B-2015 Mid-Design Year AADT

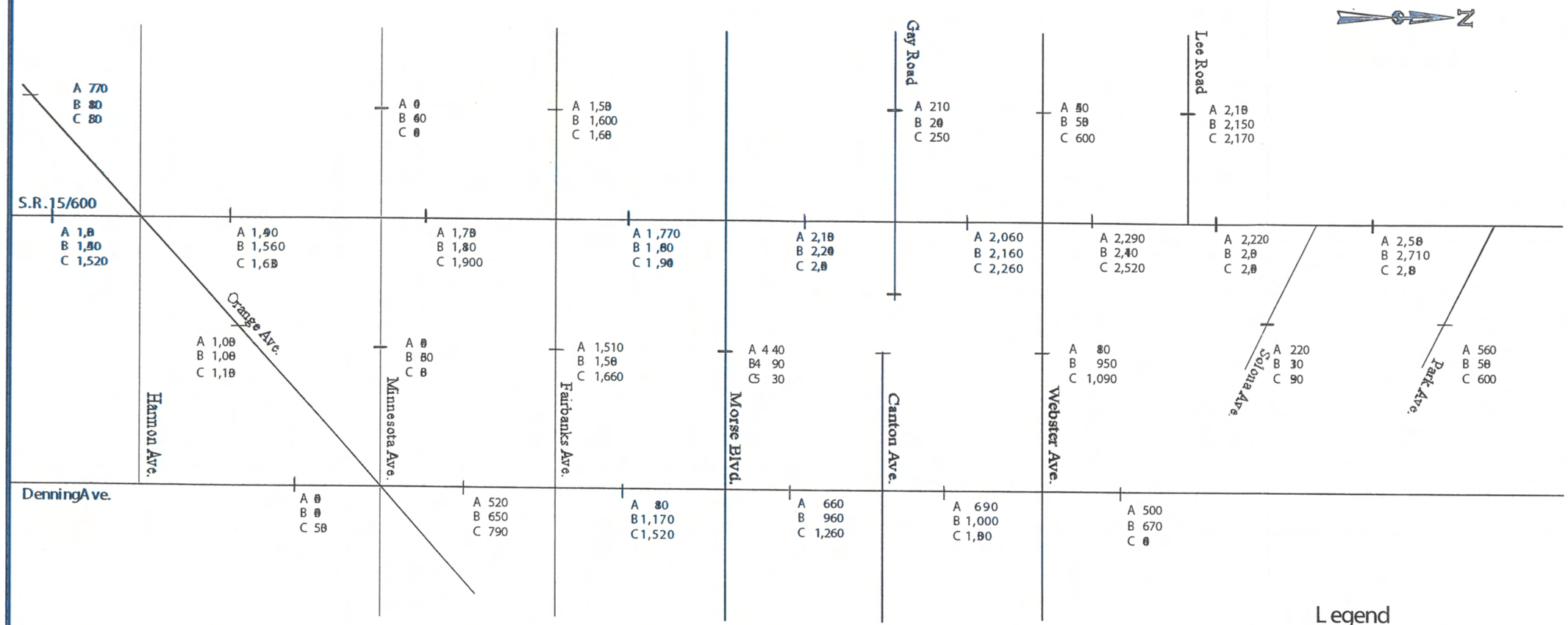
C-2025 Design Year AADT

Annual Average Daily Traffic Volumes (No Build)
S R 15/600 (US 17/92)
Norfolk Avenue to Monroe Street



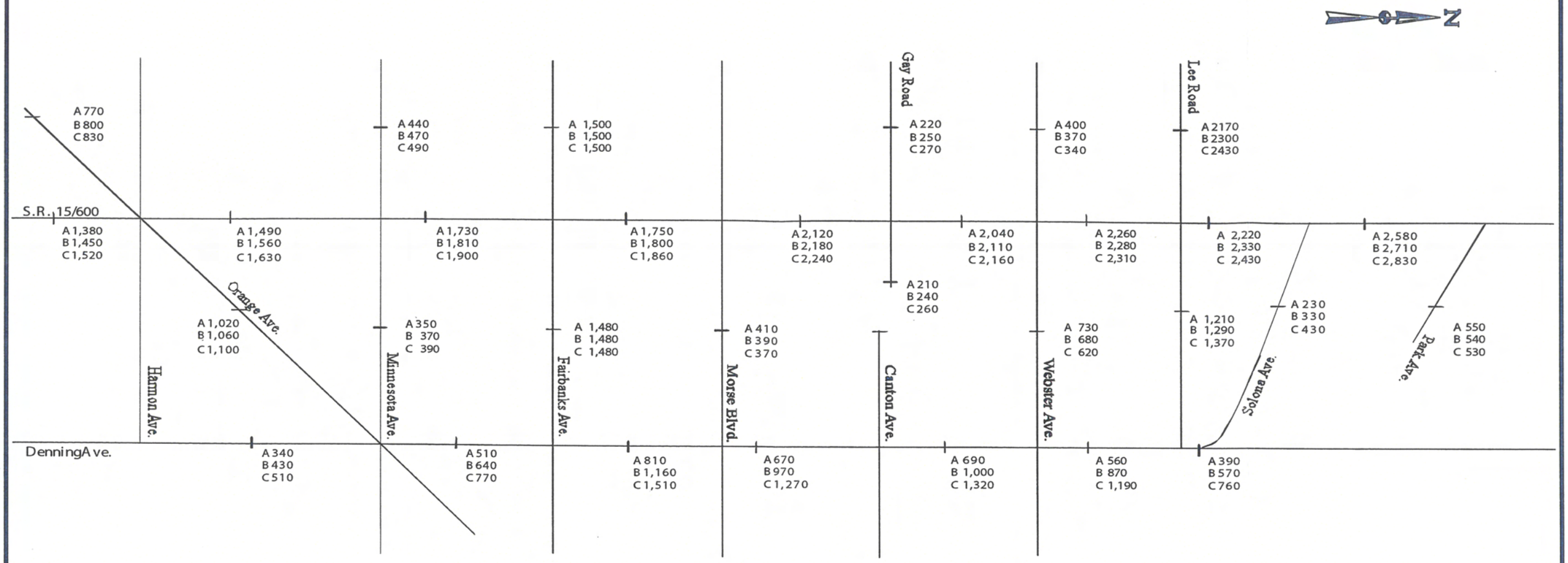
Annual Average Daily Traffic Volumes (Build Alt.5)
S R 15/600 (US 17/92)
Norfolk Avenue to Monroe Street

Legend
A-2005 Opening Year AADT
B-2015 Mid-Design Year AADT
C-2025 Design Year AADT



Directional Design Hour Volumes (No Build)
S R 15/600 (US 17/92)
Norfolk Avenue to Monroe Street

Legend
A-2005 Opening Year DDHV
B-2015 Mid-Design Year DDHV
C-2025 Design Year DDHV



Directional Design Hour Volumes (Build Alt. 5)
S R 15/600 (US 17/92)
Norfolk Avenue to Monroe Street

Legend
A-2005 Opening Year DDHV
B-2015 Mid-Design Year DDHV
C-2025 Design Year DDHV

6.4.1 INTERSECTION OPERATIONS ANALYSIS

Intersection operational analyses were performed for the Opening, Mid-Design, and Design years for the future No-Build and Build Alternatives 2, 3, 4, and 5. The intersection analyses for the future years were performed using the SYNCRO software, which is based on the most current adopted procedures as outlined in the Transportation Research Board's Highway Capacity Manual (HCM 2000) report. Table 6-8 presents the summary of the intersection Levels of Service for the future No-Build and Build Alternatives 2, 3, 4, and 5.

6.4.1.1 No Build Alternative Intersection Level of Service

Opening Year 2005

Based on the No Build geometry, intersection operational characteristics were analyzed for the opening year 2005 design hour volumes. Figure 6-7 illustrates design hour volumes along with the intersection LOS for each intersection within the study area.

Table 6-8 indicates that in the opening year 2005, five (5) of the thirteen (13) intersections analyzed operate at LOS E or better. The eight (8) intersections that were found to operate at LOS F include:

- SR 15/600 (US 17/92) at Lee Road
- SR 15/600 (US 17/92) at Webster Avenue
- SR 15/600 (US 17/92) at Morse Boulevard
- SR 15/600 (US 17/92) at Fairbanks Avenue
- SR 15/600 (US 17/92) at Orange Avenue/Harmon Avenue
- Denning Drive at Webster Avenue
- Denning Drive at Fairbanks Avenue
- Denning Drive at Orange Avenue/Minnesota Avenue

Mid Design Year 2015

Figure 6-8 illustrates the design hour volumes and intersection LOS for the mid-design year 2015. Table 6-8 indicates that there are no additional intersections operating at a deficient LOS F.

Design Year 2025

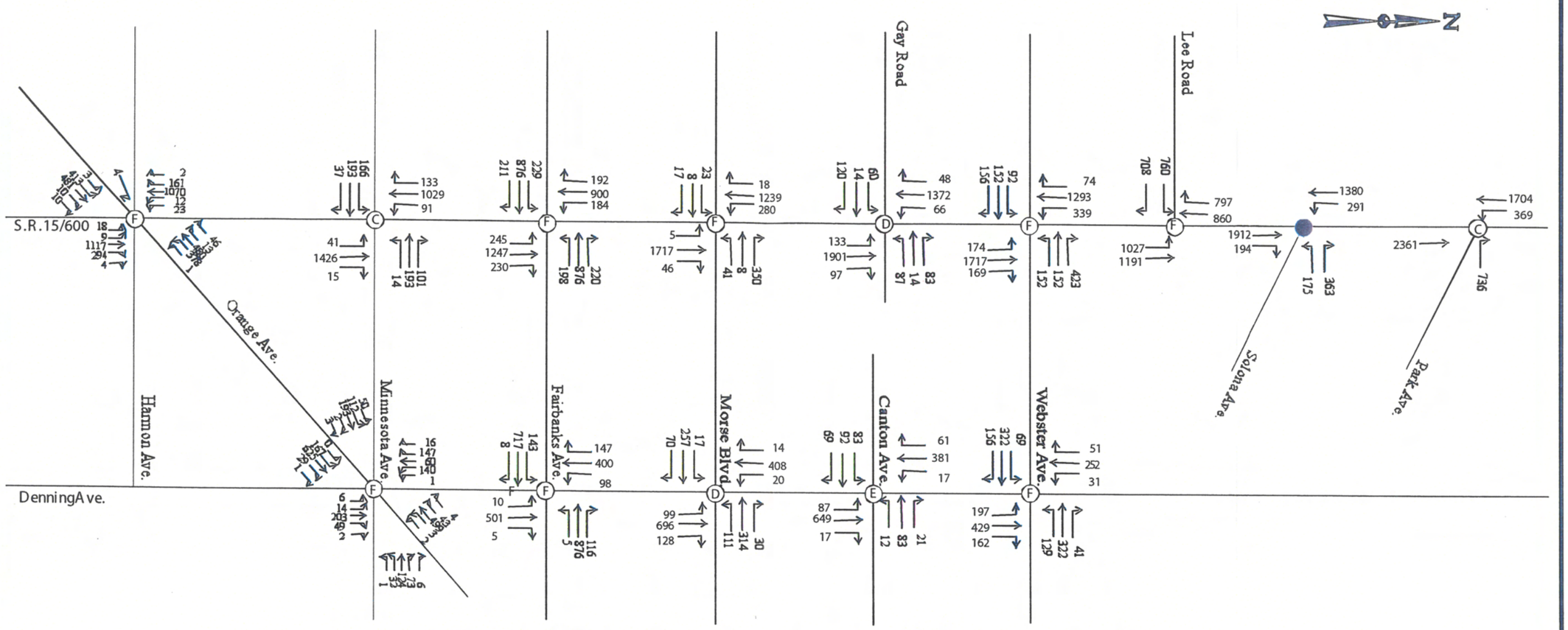
Figure 6-9 illustrates the design hour volumes and intersection LOS for the design year 2025. Table 6-8 indicates that four (4) of the thirteen (13) intersections analyzed are expected to operate at LOS E or better and nine

Table 6-8

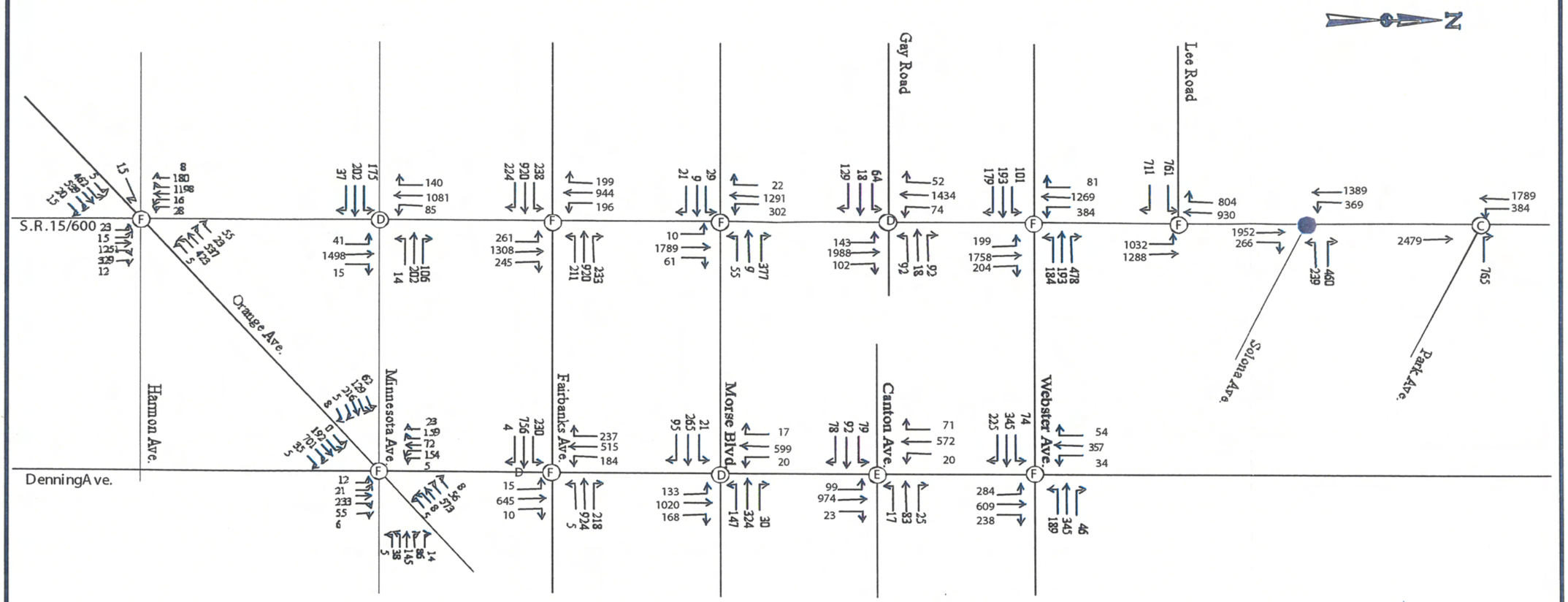
S.R. 15/600 (US 17/92) PD&E and Design
Intersection Levels of Service (LOS) Projections

Intersections	No Build			Alternative 2			Alternative 3			Alternative 4			Alternative 5		
	2005	2015	2025	2005	2015	2025	2005	2015	2025	2005	2015	2025	2005	2015	2025
S.R. 15/600 & Park Avenue	C	C	D	A	B	B	B	C	C	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*
S.R. 15/600 & Solana Avenue	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	F	F	F	F	F	F
S.R. 15/600 & Lee Road	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
S.R. 15/600 & Webster Avenue	F	F	F	D	F	F	F	F	F	F	F	F	D	D	D
S.R. 15/600 & Gay Road	D	D	D	D	D	D	C	C	C	D	D	D	D	D	D
S.R. 15/600 & Morse Boulevard	F	F	F	E	F	F	B	B	B	F	F	F	F	F	F
S.R. 15/600 & Fairbanks Avenue	F	F	F	F	F	F	C	D	D	F	F	F	F	F	F
S.R. 15/600 & Minnesota Avenue	C	D	D	C	C	D	C	C	C	C	C	C	D	D	D
S.R. 15/600 & Harmon Ave. & Orange Ave.	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Denning Drive & Lee Road Extension**	-	-	-	-	-	-	-	-	-	-	-	-	F	F	F
Denning Drive & Webster Avenue	F	F	F	E	E	F	F	F	F	F	F	F	F	F	F
Denning Drive & Canton Avenue	E	E	E	E	E	E	C	C	C	E	E	E	D	E	F
Denning Drive & Morse Boulevard	D	D	F	E	F	F	C	C	C	D	D	F	D	E	F
Denning Drive & Fairbanks Avenue	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Denning Drive & Minnesota Ave. & Orange Ave.	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

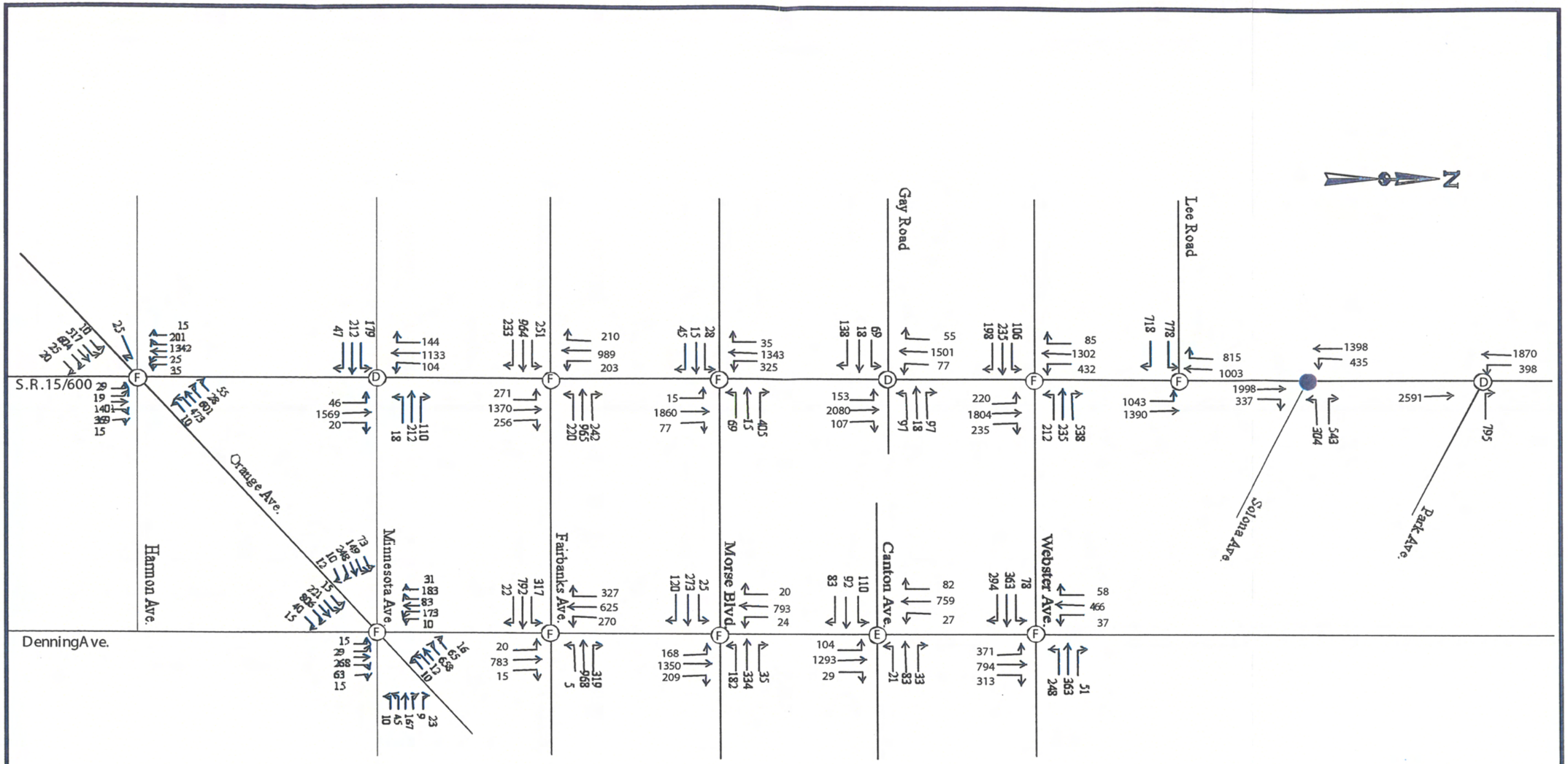
*HCM does not provide LOS analysis for Un-Signalized intersections.
**Lee Road Extension from SR 15/600 to Denning Drive was applied for only Alternative 5.



Year 2005 Design Hour Volumes & Intersection LOS(No Build)
S R 15/600 (US 17/92)
Norfolk Avenue to Monroe Street



Year 2015 Design Hour Volumes & Intersection LOS(No Build)
S R 15/600 (US 17/92)
Norfolk Avenue to Monroe Street



Year 2025 Design Hour Volumes & Intersection LOS(No Build)
SR 15/600 (US 17/92)
Norfolk Avenue to Monroe Street

(9) intersections are expected to operate at LOS F. In addition to the eight (8) intersections that operate at LOS F during the mid-design year, the intersection of Denning Drive and Morse Boulevard is expected to operate at LOS F during the design year 2025.

6.4.1.2 Build Alternative 5 Intersection Level of Service

Opening Year 2005

Based on the Build Alternative 5 geometry, intersection operational characteristics were tested with the opening year 2005 design hour volumes. Figure 6-10 illustrates design hour volumes along with the intersection LOS for each intersection within the study area.

Table 6-8 indicates that in the opening year 2005, five (5) of the fourteen (14) intersections analyzed operate at LOS E or better. The nine (9) intersections that were found to operate at LOS F include:

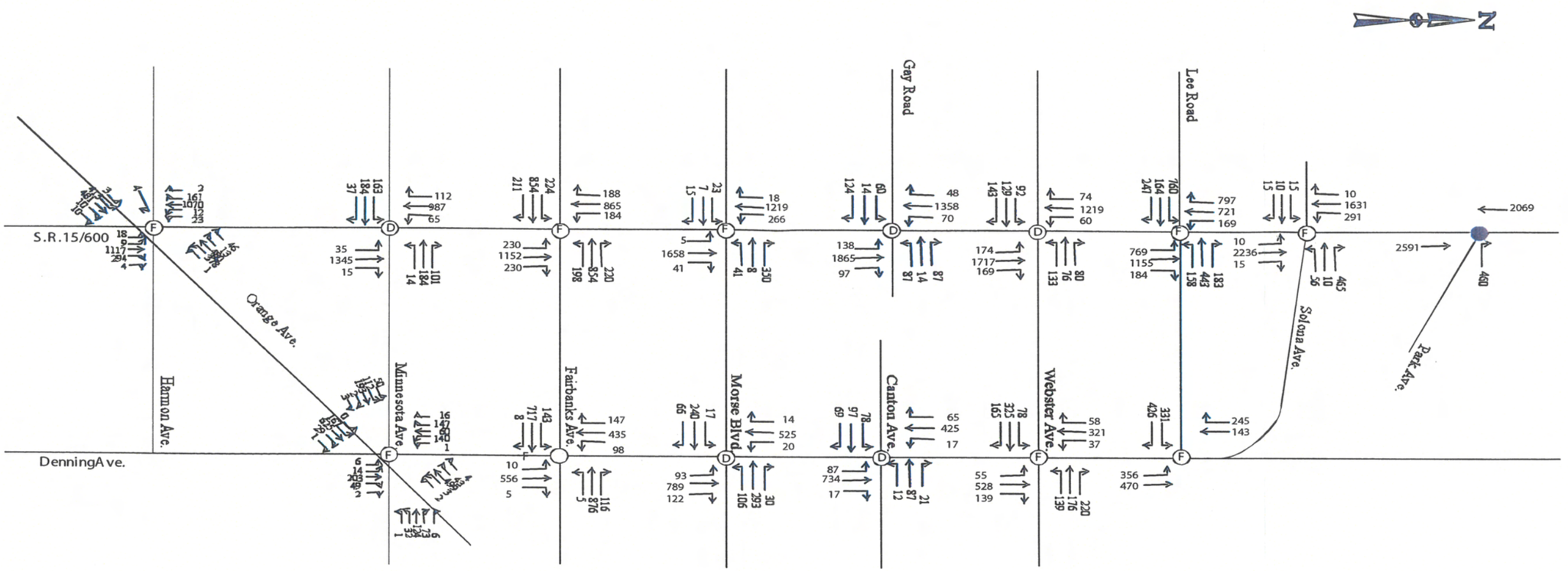
- SR 15/600 (US 17/92) at Solana Avenue
- SR 15/600 (US 17/92) at Lee Road
- SR 15/600 (US 17/92) at Morse Boulevard
- SR 15/600 (US 17/92) at Fairbanks Avenue
- SR 15/600 (US 17/92) at Orange Avenue/Harmon Avenue
- Denning Drive at Lee Road Extension
- Denning Drive at Webster Avenue
- Denning Drive at Fairbanks Avenue
- Denning Drive at Orange Avenue/Minnesota Avenue

Mid Design Year 2015

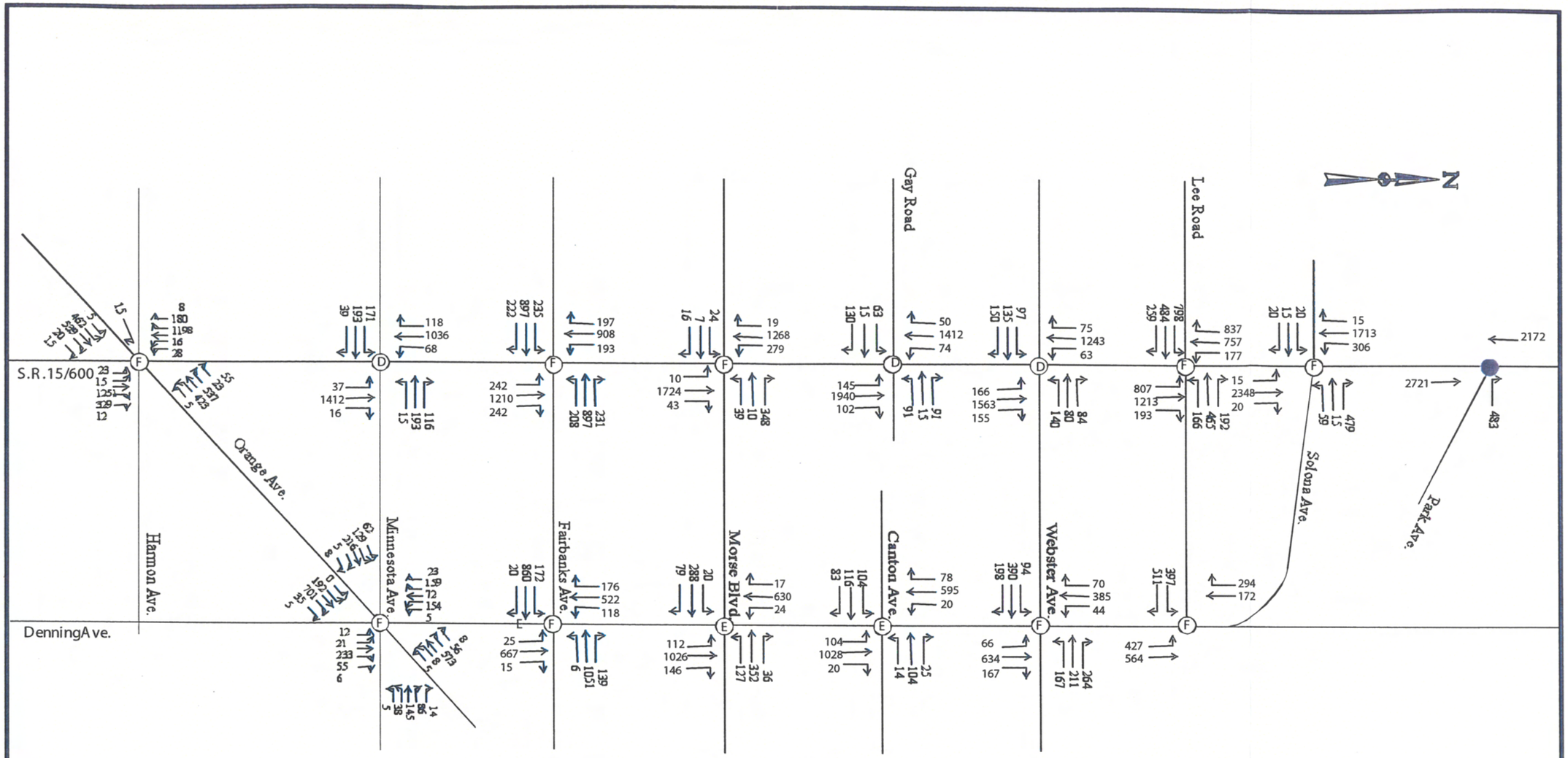
Figure 6-11 illustrates the design hour volumes and the intersection LOS for the mid design year 2015. Table 6-8 indicates that two (2) intersections of Denning Drive at Canton Avenue and Morse Boulevard would be deteriorated as LOS 'E' from 'D'. The nine (9) intersections that are expected to operate at LOS 'F' remain as open year 2005.

Design Year 2025

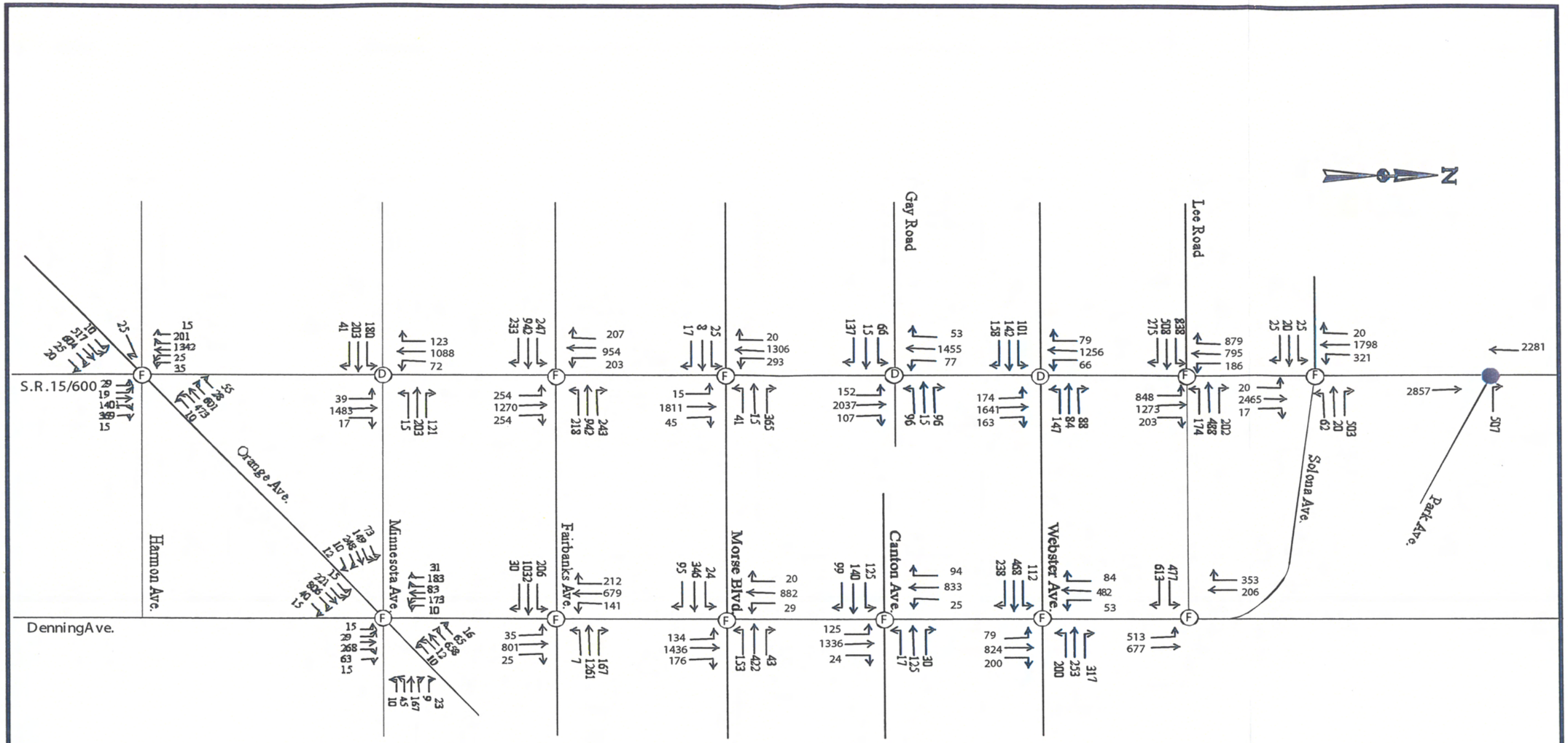
Figure 6-12 illustrates the design hour volumes and the intersection LOS for the design year 2025. Table 6-8 indicates that three (3) of the fourteen (14) intersections analyzed are expected to operate at LOS E or better and eleven (11) intersections are expected to operate at LOS F. In addition to the nine (9) intersections that operate at LOS F during the mid-design year, the intersections of Denning Avenue at Canton Avenue and Morse Boulevard are expected to operate at LOS F during the design year 2025.



Year 2005 Design Hour Volumes & Intersection LOS(Alt. 5)
S R 15/600 (US 17/92)
Norfolk Avenue to Monroe Street



Year 2015 Design Hour Volumes & Intersection LOS (Alt. 5)
S R 15/600 (US 17/92)
Norfolk Avenue to Monroe Street



Year 2025 Design Hour Volumes & Intersection LOS (Alt. 5)
S R 600/15 (US 17/92)
Norfolk Avenue to Monroe Street

6.4.2 ROADWAY OPERATIONAL ANALYSIS

Roadway operational analyses were performed for Opening Year, Mid-design Year and Design Year for the No-Build and Build Alternatives 2, 3, 4, and 5. The roadway operational level of service analysis was performed by comparing the directional design hour volumes against the directional peak hour capacities.

For SR 15/600 (US 17/92) and Denning Drive, 2002 ARTPLAN Spreadsheets are utilized after inputting optimized cycle lengths and green to cycle length ratios resulted from SYNCHRO simulations. Table 4-7 of 2002 FDOT Quality/Level of Service Handbook was applied for side streets segments LOS analyses.

6.4.2.1 No Build Alternative Roadway Link Level of Service

Table 6-9 summarizes the ARTPLAN results of SR 15/600 (US 17/92) and Denning Drive. It also includes the roadway segments LOS of side streets for the No Build alternative for the opening, mid-design, and design years.

Based on Table 6-9 it is shown that four (4) roadway segments along SR 15/600 (US 17/92) within the study area are expected to operate at LOS F during the design year 2025 under the No Build conditions. In Denning Drive, all roadway segments except Webster Avenue to Solana Avenue are also expected to operate at LOS F in design year.

6.4.2.3 Build Alternatives 4 & 5 Roadway Link Level of Service

Table 6-10, the roadway segments LOS results along SR 15/600 (US 17/92) and Denning Drive are identical as Alternative 4 except only one segment from Lee Road and Solana Avenue on SR 15/600 (US 17/92). The segment LOS is changed as E in alternative 5 from C on alternative 4. As a result, the four (4) segments from Minnesota Avenue to Webster Avenue expect to operate at LOS F as No Build presents.

Table 6-9

S.R. 15/600 (US 17/92) PD&E and Design
Roadway Segments LOS Analyses for No Build

Roadways	Segments	Cycle Length (sec)			g/c			v/c			Control Delay			Segment LOS		
		2005	2015	2025	2005	2015	2025	2005	2015	2025	2005	2015	2025	2005	2015	2025
S.R. 15/600 (US 17/92)	SR 527 (Orange Avenue) to Minnesota Avenue	180	180	180	0.49	0.48	0.47	0.84	0.97	1.10	32.93	43.78	88.11	F	F	F
	Minnesota Avenue to SR 426 (Fairbanks Avenue)	180	180	180	0.52	0.51	0.52	0.81	0.86	0.89	27.40	29.71	28.92	F	F	F
	SR 426 (Fairbanks Avenue) to Morse Boulevard	180	180	180	0.41	0.41	0.41	1.05	1.12	1.16	80.11	106.72	122.61	F	F	F
	Morse Boulevard to Gay Road	180	180	180	0.61	0.60	0.60	0.85	0.90	0.94	15.87	18.62	20.20	E	E	E
	Gay Road to Webster Avenue	180	180	180	0.72	0.72	0.72	0.77	0.81	0.84	3.22	3.37	3.57	D	D	D
	Webster Avenue to SR 423 (Lee Road)	180	180	180	0.50	0.47	0.44	1.11	1.22	1.35	87.86	141.66	202.13	F	F	F
	SR 423 (Lee Road) to Solona Avenue	180	180	180	0.71	0.71	0.71	0.50	0.53	0.56	2.51	2.61	2.69	C	C	C
	Solona Avenue to Park Avenue	40	40	40	0.95	0.95	0.95	0.64	0.56	0.67	0.34	0.17	0.40	C	C	C
Denning Drive	Minnesota Ave. to SR 426 (Fairbanks Ave.)	180	180	180	0.24	0.35	0.43	0.33	0.27	0.18	58.33	39.74	27.35	F	F	F
	SR 426 (Fairbanks Ave.) to Morse Blvd.	180	180	180	0.17	0.18	0.18	0.89	1.09	1.33	91.83	140.49	239.97	F	F	F
	Morse Blvd. to Canton Ave.	180	180	180	0.42	0.43	0.44	0.64	0.90	1.14	36.46	41.69	108.95	F	F	F
	Canton Ave. to Webster Ave.	100	100	100	0.54	0.47	0.45	0.41	0.68	0.92	9.59	17.08	22.68	D	E	F
	Webster Ave. to Solana Avenue	40	40	40	0.35	0.41	0.41	0.49	0.60	0.79	9.91	8.64	9.86	C	D	D
SIDE STREETS	SR 527 (Orange Avenue) - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C
	SR 527 (Orange Avenue) - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C
	Minnesota Avenue - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	B	B	C
	Minnesota Avenue - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B
	SR 426 (Fairbanks Avenue) - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D	D	D
	SR 426 (Fairbanks Avenue) - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D	D	D
	Morse Boulevard - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	D	D
	Gay Road - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B
	Gay Road - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B
	Webster Avenue - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	B	C	C
	Webster Avenue - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	E	F	F
	SR 423 (Lee Road) - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	F	F	F
	Solona Avenue - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B
	Park Avenue - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D	D	D

Note:
1. S.R. 15/600 (US 17/92) and Denning Drive - ARTPLAN (2002 Conceptual Planning Analysis) Results.
2. Side Street - FDOT 2002 Quality/LOS Handbook, Table 4-7.

Table 6-10

S.R. 15/600 (US 17/92) PD&E and Design

Roadway Segments LOS Analyses for Alternative 5

Roadways	Segments	Cycle Length (sec)			g/c			v/c			Control Delay			Segment LOS		
		2005	2015	2025	2005	2015	2025	2005	2015	2025	2005	2015	2025	2005	2015	2025
S.R. 15/600 (US 17/92)	SR 527 (Orange Avenue) to Minnesota Avenue	180	180	180	0.49	0.48	0.47	0.66	0.76	1.09	27.49	31.08	79.53	F	F	F
	Minnesota Avenue to SR 426 (Fairbanks Avenue)	180	180	180	0.53	0.50	0.51	0.74	0.82	0.85	24.48	31.05	29.15	F	F	F
	SR 426 (Fairbanks Avenue) to Morse Boulevard	180	180	180	0.39	0.39	0.39	1.04	1.09	1.14	78.90	97.02	118.93	F	F	F
	Morse Boulevard to Gay Road	180	180	180	0.61	0.61	0.61	0.81	0.85	0.89	15.22	15.97	16.85	E	E	E
	Gay Road to Webster Avenue	180	180	180	0.72	0.72	0.72	0.75	0.79	0.87	3.15	3.39	4.24	D	D	D
	Webster Avenue to SR 423 (Lee Road)	180	180	180	0.59	0.59	0.59	0.82	0.85	0.89	19.07	19.89	21.09	F	F	F
	SR 423 (Lee Road) to Solona Avenue	180	180	180	0.59	0.58	0.57	0.67	0.71	0.76	15.30	17.27	19.45	E	E	E
	Solona Avenue to Park Avenue	40	40	40	0.59	0.57	0.56	1.12	1.22	1.30	63.80	108.15	145.44	F	F	F
Denning Drive	Minnesota Ave. to SR 426 (Fairbanks Ave.)	180	180	180	0.25	0.38	0.48	0.31	0.25	0.24	56.29	65.05	121.89	F	F	F
	SR 426 (Fairbanks Ave.) to Morse Blvd.	180	180	180	0.17	0.18	0.19	0.98	1.15	1.32	109.75	163.51	236.27	F	F	F
	Morse Blvd. to Canton Ave.	180	180	180	0.40	0.39	0.38	0.73	0.96	1.34	41.26	50.74	204.99	F	F	F
	Canton Ave. to Webster Ave.	100	100	100	0.52	0.45	0.43	0.47	0.75	1.01	11.30	19.41	33.21	E	E	F
	Webster Ave. to Solana Avenue	40	40	40	0.39	0.37	0.37	0.50	0.63	0.80	8.59	10.11	10.75	C	D	D
SIDE STREETS	SR 527 (Orange Avenue) - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C
	SR 527 (Orange Avenue) - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C
	Minnesota Avenue - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	D
	Minnesota Avenue - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C
	SR 426 (Fairbanks Avenue) - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D	D	D
	SR 426 (Fairbanks Avenue) - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D	D	D
	Morse Boulevard - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C
	Gay Road - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C
	Gay Road - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C
	Webster Avenue - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	D	D
	Webster Avenue - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	F	F	F
	SR 423 (Lee Road) - W of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	F	F	F
	Solona Avenue - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	C	D
	Park Avenue - E of SR 15/600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D	C	C

Note:

1. S.R. 15/600 (US 17/92) and Denning Drive - ARTPLAN (2002 Conceptual Planning Analysis) Results.
2. Side Street - FDOT 2002 Quality/LOS Handbook, Table 4-7.

6.5 *Recommended Improvements*

Based on the initial results of the traffic analysis conducted for the SR 15/600 (US 17/92) PD&E Study, Build Alternatives 2 and 3 were rejected from further study as viable options due to the high cost of right-of-way taking and other constraints. Build Alternatives 4 and 5 were retained for further analysis since the realignment of Solana Avenue and the extension of Lee Road would provide for a better traffic circulation and a better utilization of Denning Drive. According to the detailed Measures of Effectiveness (MOE) results provided by SYNCHRO, the total vehicle stops along SR 15/600 (US 17/92) in Alternative 5 would be reduced by a 29% as compared to No Build. The average vehicle speed (mph) on SR 15/600 (US 17/92) is expected to improve from 11 mph to 13 mph.

The following intersection improvements along the SR 15/600 (US 17/92) corridor were recommended in the SR 15/600 (US 17/92) Design Traffic Technical Memorandum. These recommendations were considered, where feasible, during the alternatives analysis of proposed roadway improvements:

- SR 15/600 (US 17/92) at Park Avenue – Southbound dual left turn lanes;
- SR 15/600 (US 17/92) at Webster Avenue – Southbound dual left turn lanes;
- SR 15/600 (US 17/92) at Fairbanks Avenue – Eastbound dual left turn lanes;
- SR 15/600 (US 17/92) at Solana Avenue – Signalize.

Subsequent to the completion of the final Design Traffic Technical Memorandum summarized above, additional coordination with the City of Winter Park and their consultants was conducted regarding future travel demand and conceptual design alternatives, specifically in regards to the proposed extension of SR 438 (Lee Road). This coordination resulted in the identification of modifications to the roadway network and refinements to the design-year turning movement forecasts for the Lee Road Extension. The City of Winter Park indicated its desire to amend its current Comprehensive Land Use Plan and Traffic Circulation Element to reflect a future two-lane facility along Denning Drive within the SR 15/60 (US 17/92) study area. This represents a lane reduction from the existing four-lane Denning Drive configuration. The proposed conceptual design layout shown in Appendix B reflect these refinements in terms of recommended intersection geometry at SR 15/600 (US 17/92) and Lee Road as well as the intersection of the proposed Lee Road extension and Denning Drive. In addition, as a condition of prior approval for the Gay Road signal during the construction of the Winter Park Village, the existing signal at Webster Avenue is to be removed and would be replaced with a northbound directional median opening.

7.0 CORRIDOR ANALYSIS

The SR 15/600 (US 17/92) PD&E Study was conducted to develop and evaluate alternatives to improve corridor mobility and safety within the existing SR 15/600 (US 17/92) corridor. Existing and projected traffic operational characteristics and access management requirements on the existing alignment were evaluated in order to develop transportation solutions that addressed congestion management in this heavily urbanized corridor.

In 1998, the City of Winter Park prepared a Community Re-development Enhancement Area (CREA) Plan that also considered the relationship between land use development and transportation particularly along SR 15/600 (US 17/92). In addition to the CREA Plan, the City prepared a Corridor Master Plan for SR 15/600 (US 17/92) to identify and document corridor mobility and congestion management alternatives as well as improved access management, bicycle and pedestrian improvements and landscape/streetscape enhancements. The City's Corridor Master Plan for SR 15/600 (US 17/92) was utilized as the point of departure for the PD&E Study and served to define the City's vision for the roadway at that time.

Utilization of parallel "off system" roadways was a key element of the City's Corridor Master Plan. The utilization of Harper Street and Denning Drive, for example, which parallel SR 15/600 (US 17/92) within ¼ mile to the east, were considered viable corridors for providing additional north-south capacity within the study area as well as providing alternatives for experienced bicyclists. In addition, Harper Street was identified as a viable alternative to providing an alternate means of access to properties fronting both SR 15/600 (US 17/92) and Harper Street. The Harper Street alternative was expected to solve a majority of the access management issues along the east side of SR 15/600 (US 17/92) from Fairbanks Avenue to north of Webster Avenue since the City's Corridor Master Plan identified a raised median alternative for the SR 15/600 (US 17/92) mainline improvement.

Another important element of the Corridor Master Plan was the extension of SR 423 (Lee Road) from SR 15/600 (US 17/92) eastward to Denning Drive. This improvement was predicted to alleviate the heavily congested segment of SR 15/600 (US 17/92) between Gay Road and Lee Road, particularly the intersections of SR 15/600 (US 17/92) and Lee Road and SR 15/60 (US 17/92) and Webster Avenue. Denning Drive is an existing four-lane undivided urban collector located ¼ mile east of SR 15/600 (US 17/92). Additional north-south travel capacity would be provided by Denning Drive through the Lee Road extension. Another benefit of the Denning Drive alternative is the connection to major east-west corridors within the SR 15/600 (US 17/92) corridor.

Related to the extension of Lee Road would be the removal of the existing traffic signal at Webster Avenue, a condition of the development order and construction permit issued for the Winter Park Village in 1998. The City had agreed at that time to conduct a traffic

operational analysis for the segment of SR 15/600 (US 17/92) between Gay Road and Lee Road in order to assess whether the roadway could function at an acceptable level of service with the Webster Avenue signal even though the Gay Road signal was permitted upon the condition that the Webster Avenue signal would be removed within a year of opening the Winter Park Village. At the time this final Preliminary Engineering Report was written (June 2004), this permit condition remained unresolved.

Alternate corridors to the west of the existing SR 15/600 (US 17/92) alignment are not as well defined as on the east side. Due to the natural constraints presented by Lake Killarney, there is no continuous well-defined east-west, north-south grid system of roadways on the west side; however, there are limited opportunities in the vicinity of Gay Road, Webster Avenue and Lee Road. An off system corridor alternative involving Gay Road/Country Club Road, Executive Drive and Lee Road would provide the same level of congestion relief and alternate access as the Harper Road alternative. This system potential network is being further evaluated by the City of Winter Park.

In conclusion, alternate off system corridors parallel to SR 15/600 (US 17/92) exist in varying degrees and may play a vital role in the overall corridor mobility within the study area. The overall congestion management plan for SR 15/600 (US 17/92) from Norfolk Avenue to Monroe Street should seek to maximize the use of these corridors if possible to help resolve capacity, mobility and access requirements.

8.0 ALTERNATIVE ANALYSIS

The following section describes the improvement alternatives (design concepts) which have been considered, including the "no-project" alternative. It is important to note that the design concepts considered for the "project" alternatives were developed to address the existing and projected traffic congestion and operational needs of the existing SR 15/600 (US 17/92) corridor from Norfolk Avenue to Monroe Street and involved the analysis of alternative typical section configurations, median modifications, access management strategies, drainage system improvements, intersection improvements, bicycle and pedestrian facility improvements and highway beautification alternatives.

8.1 No Build Alternative

The no-project alternative involves maintaining the existing four-lane facility. Under this alternative, no improvements would be made to the SR 15/600 (US 17/92) mainline. In addition, the extension of SR 423 (Lee Road), minor intersection improvements, median modifications, access management strategies, bicycle and pedestrian facility improvements and highway beautification alternatives would not be considered. The implications of this alternative include decreasing levels of service for the intersection and roadway links as traffic volumes will continue to increase, no improvement for multi-modal facilities (bicycle, pedestrian and surface transit), increased air pollution resulting from increased congestion and longer peak periods, and increased traffic on adjacent roadway networks as motorists seek alternative routes to avoid heavily congested sections of SR 15/600 (US 17/92).

8.1.1 ADVANTAGES

There are certain advantages of the no-project alternative, as follows:

- No cost to prepare roadway design plans;
- No right-of-way acquisition costs;
- No roadway construction or utility relocation costs;
- No drainage system construction costs;
- No business damages;
- No residential relocations;
- No natural or biological impacts;
- No temporary inconveniences during construction.

Based on these advantages and the financial benefits of the no project alternative, this alternative was considered a viable alternative during the PD&E Study.

8.1.2 DISADVANTAGES

Although the advantages of the no-project alternative are significant, the disadvantages must also be considered. If corridor improvements are not made along SR 15/600 (US 17/92) and as traffic volumes continue to increase as expected, the existing facility will not be able to handle the travel demand and the level of service conditions will continue to deteriorate. In addition to a decreased level of service along SR 15/600 (US 17/92), the adjacent roadway network will experience more congestion as motorists will seek alternatives whenever possible. In some cases, this condition may contribute to increased "cut-through" traffic in nearby residential neighborhoods, a situation that was identified during the study as an existing problem.

Motorists at signalized intersections will continue to experience significant delay and SR 15/600 (US 17/92) will continue to fail to meet the minimum level of service standards for the entire segment between Norfolk Avenue and Monroe Street. Crash rates on SR 15/600 (US 17/92), which are high in the existing condition in certain sections, would continue to increase as traffic volumes increase. Existing deficiencies in pedestrian and bicycle facilities will not be improved and there will be limited opportunities to improve surface transit operations which will also contribute to the overall decrease in travel efficiency along the corridor.

With no improvements, impacts to air quality will increase as congestion worsens on this section of SR 15/600 (US 17/92). Increased road user costs will occur due to the increasing congestion, slower speeds and longer periods of stopped conditions which result in longer periods of engine idling and increased build up of hydro-carbon emission into the atmosphere.

The no-project alternative would be inconsistent with the METROPLAN ORLANDO's current adopted Long-Range Transportation Plan and the City of Winter Park's Comprehensive Land Use and Growth Management Plan, which identify the need to improve SR 15/600 (US 17/92).

8.2 Transportation System Management

Transportation System Management (TSM) strategies include alternatives to road widening which attempt to maximize the efficiency of the existing roadway system. These alternatives to roadway construction are typically recommended in highly urbanized or constrained corridors and usually only provide short-term relief. TSM alternatives may include the addition of turn lanes and traffic signal modifications at intersections, the addition of park and ride lots, ride sharing programs such as car pooling, van pooling and commuter assistance programs, and increased surface transit operations. Many of these features have been

considered for the SR 15/600 (US 17/92) corridor either as part of the regional long range transportation planning process or in the development of local government comprehensive plans. Due to the significant degree of urbanization along the SR 15/600 (US 17/92) and lack of available right-of-way, certain TSM or congestion management strategies were identified as the only viable alternative to maximize efficiency, improve mobility and enhance safety along this facility. The only improvement options which would substantially improve capacity and mobility on SR 15/600 (US 17/92) would involve additional through travel lanes and require significant right-of-way acquisition (ie: widening to six lanes between Orange Avenue and Lee Road). For the purpose of this study, certain TSM measures or congestion management alternatives such as intersection improvements, access management, and enhanced bicycle and pedestrian facilities were considered as viable alternatives.

8.3 Project Alternatives

The evaluation of alternative transportation improvements along the SR 15/600 (US 17/92) corridor involved several conceptual design elements. These included alternative typical sections, median modifications, drainage system improvements, utilization of parallel "off system" facilities, bicycle and pedestrian facility improvements and highway beautification. The alternatives analysis conducted for the SR 15/600 (US 17/92) PD&E Study is presented in the following sections of this Report.

8.3.1 ALTERNATIVES DEVELOPMENT

In 1998, the City of Winter Park adopted a Community Re-development Enhancement Area (CREA) Plan that included the SR 15/600 (US 17/92) corridor. The CREA Plan addressed the relationship between transportation and potential land use development in the western section of Winter Park and was used to support the City's community re-development efforts. In addition, a Corridor Master Plan was developed for the roadway from Norfolk Avenue to Monroe Street. The SR 15/600 (US 17/92) Corridor Master Plan identified several transportation related improvements for the roadway which were re-evaluated during the FDOT PD&E Study. The City's Corridor Master Plan for SR 15/600 (US 17/92) was considered the point of departure for moving into the development of project alternatives during the PD&E Study.

Congestion management strategies and corridor improvements were identified in the City's Corridor Master Plan including: the implementation of a raised median to enhance corridor mobility and safety; the use of parallel "off system" roadway networks for improving traffic distribution, bicycle travel, and access management; traffic signal modifications; and, the extension of SR 423 (Lee Road). These strategies were among those evaluated during this study.

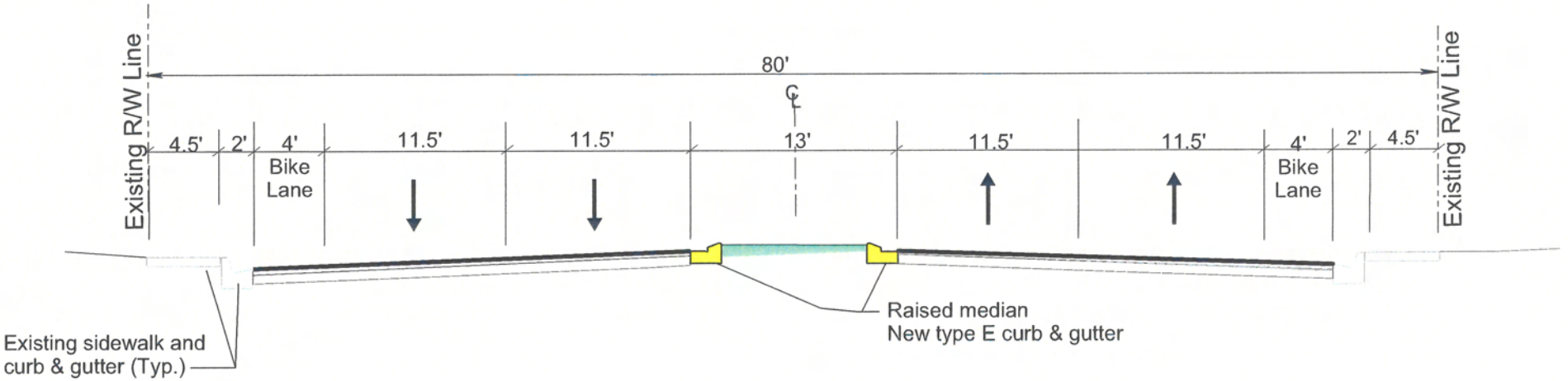
8.3.2 ALTERNATIVES CONSIDERED

The alternatives analysis for the SR 15/600 (US 17/92) PD&E Study began with a re-evaluation of the City' Corridor Master Plan. The initial effort in this regard was related to developing alternative typical section concepts that presented alternatives for travel lane widths, median types and widths and border areas. Figures 8-1 through 8-4 show the initial alternatives developed for the SR 15/600 (US 17/92) mainline improvement from Orange Avenue to Lee Road. Due to existing land use and property access characteristics between Norfolk Avenue and Orange Avenue, the initial alternatives analysis considered the existing four lane roadway with center turn lane to be the most viable alternative in this segment. North of Lee Road the existing SR 15/600 (US 17/92) consists of a five- and six-lane divided roadway; therefore, typical section alternatives were not evaluated for this segment.

Each of the initial alternatives considered for the mainline from Orange Avenue to Lee Road included a raised median concept which, at the time, was consistent with the City of Winter Park's Corridor Master Plan for SR 15/600 (US 17/92). Figure 8-5 shows the initial typical section developed for the extension of SR 423 (Lee Road). The following is a brief description of each of the initial alternative typical sections.

Alternative Typical Section Number 1 (Figure 8-1) for the SR 15/600 (US 17/92) mainline improvement from Orange Avenue to Lee Road provides four (4) 11 ½ foot wide travel lanes, two (2) in each direction, separated by a 13 foot wide raised median (with Type E curb and gutter). The border area along both sides of this typical section alternative provides a 4 foot wide bicycle lane for experienced cyclists and would tie into the existing 2 foot wide curb and gutter for stormwater conveyance and 4 ½ foot wide concrete sidewalk, located flush with the back of curb. These improvements would be accommodated within the existing 80 foot right-of-way.

Alternative Typical Section Number 2 (Figure 8-2) for the SR 15/600 (US 17/92) mainline improvement from Orange Avenue to Lee Road provides two (2) 11 ½ foot wide inside travel lanes and two (2) 14 ½ foot wide outside travel lanes, separated by a 15 foot wide raised median (with Type E curb and gutter). The wide outside travel lane could be used to accommodate experienced cyclists, similar to the existing typical section. The border area along both sides of this typical section alternative includes the existing 2 foot wide curb and gutter for stormwater conveyance and 4 ½ foot wide concrete sidewalk, located flush with the back of curb. These



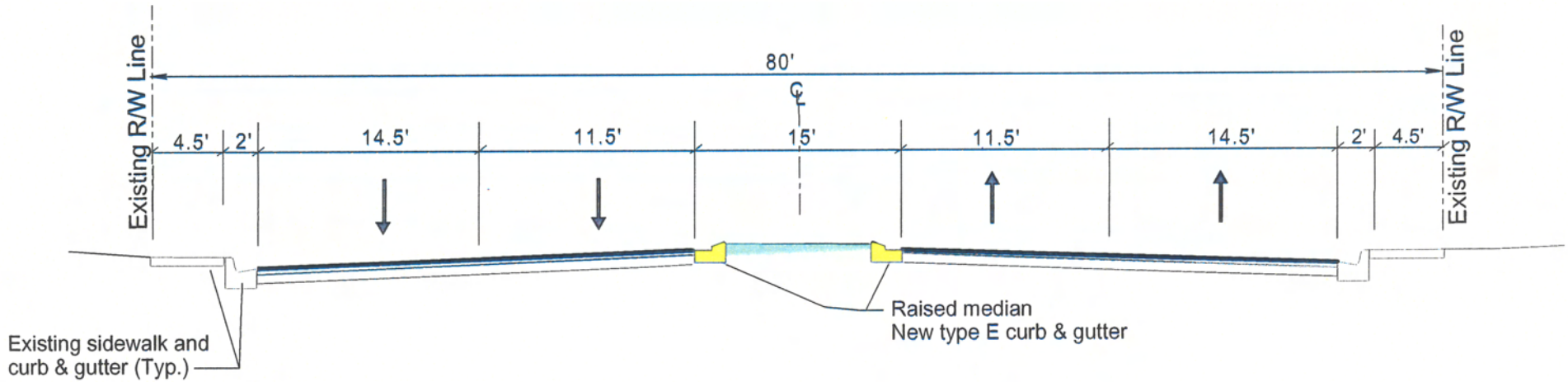
Four-Lane Urban Typical Section (Raised Median)

From Orange Avenue to Lee Road

Existing Posted Speed: 35 mph

Alternative Typical Section Number 1

Figure 8-1



Four-Lane Urban Typical Section (Raised Median)

From Orange Avenue to Lee Road

Existing Posted Speed: 35 mph

Alternative Typical Section Number 2

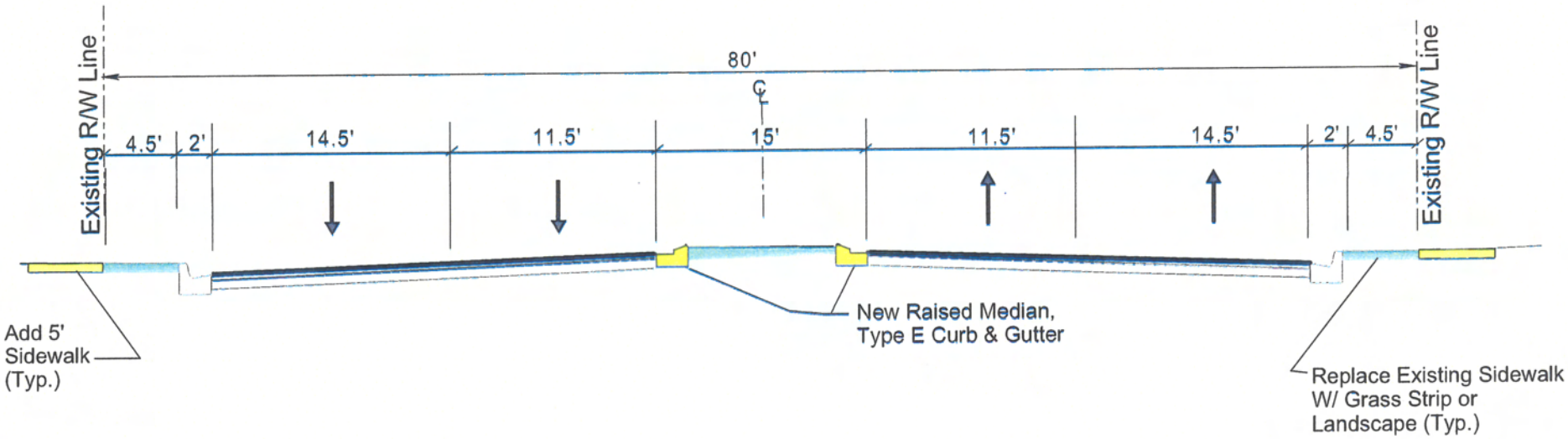
Figure 8-2

improvements would be accommodated within the existing 80 foot right-of-way.

Alternative Typical Section Number 3 (Figure 8-3) for the SR 15/600 (US 17/92) mainline improvement from Orange Avenue to Lee Road is similar to Alternative Typical Section Number 2 and provides two (2) 11 ½ foot wide inside travel lanes and two (2) 14 ½ foot wide outside travel lanes, separated by a 15 foot wide raised median (with Type E curb and gutter). The wide outside travel lane could be used to accommodate experienced cyclists, similar to the existing typical section. The border area along both sides of this typical section alternative includes the existing 2 foot wide curb and gutter for stormwater conveyance; however, a wider sidewalk would be proposed and located flush with the back of curb. This sidewalk alternative would require either direct right-of-way acquisition from adjacent property owners or an easement agreement between property owners and the City of Winter Park to accommodate the additional width. The City of Winter Park had initially expressed a desire to provide a 12 foot wide sidewalk which would require a minimum 7 ½ foot wide acquisition or easement along both sides of the existing roadway to accommodate this alternative. If the easements could be secured, the remaining elements of these improvements would be accommodated within the existing 80 foot right-of-way.

Alternative Typical Section Number 4 (Figure 8-4) for the SR 15/600 (US 17/92) mainline improvement from Orange Avenue to Lee Road provides four (4) 11 ½ foot wide travel lanes, two (2) in each direction, separated by a 15 foot wide raised median (with Type E curb and gutter). The border area along both sides of this typical section alternative includes a 2 foot wide curb and gutter for stormwater conveyance and a minimum 6 foot wide concrete sidewalk, located flush with the back of curb. The actual sidewalk width would vary up to 7 ½ feet and would be accomplished by relocating the existing curb line inward toward the existing roadway centerline. Existing curb inlet tops would be replaced and additional drainage structures would be required to tie into the existing stormwater conveyance system. These improvements would be accommodated within the existing 80 foot right-of-way.

The initial Lee Road Extension Typical Section alternative is shown on Figure 8-5. Situated within a 100 foot right-of-way, the extension would represent a new alignment location. Four (4) 12 foot wide travel lanes would be provided, two (2) in each direction, separated by a 22 foot raised median. A 15 foot wide border area would be provided and would support a 2 foot wide curb and gutter system, 3 foot wide grass strip, 5 foot wide concrete sidewalk and 5 foot wide area to tie into existing grade along both sides of the proposed extension.



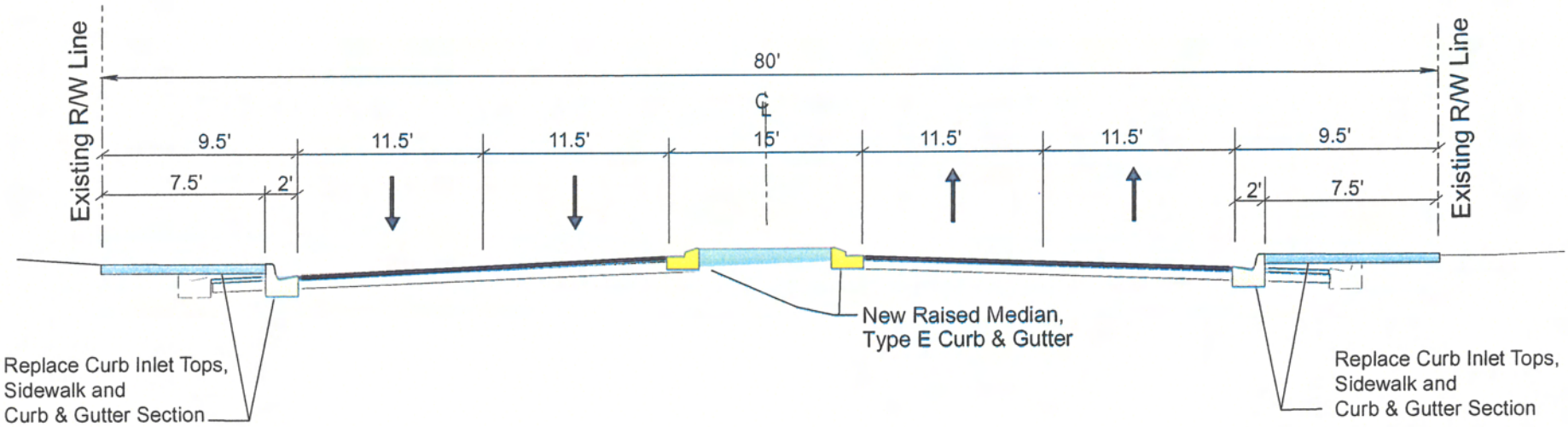
Four-Lane Urban Typical Section (Raised Median)

From Orange Avenue to Lee Road

Existing Posted Speed: 35 mph

Alternative Typical Section Number 3

Figure 8-3



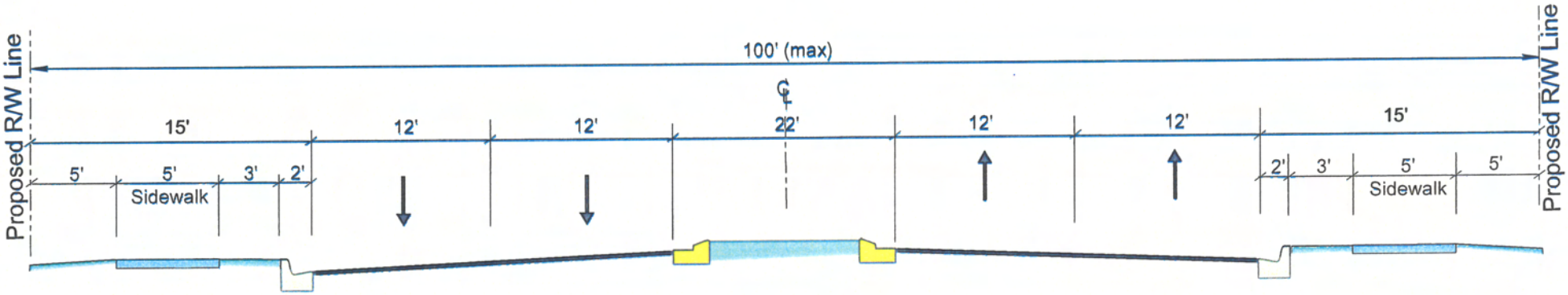
Four-Lane Urban Typical Section (Raised Median)

From Orange Avenue to Lee Road

Existing Posted Speed: 35 mph

Alternative Typical Section Number 4

Figure 8-4



Four-Lane Urban Typical Section
From SR 15/600 US (17/92) to Denning Drive
Posted Speed: 35 mph

Initial Lee Road Extension Typical Section

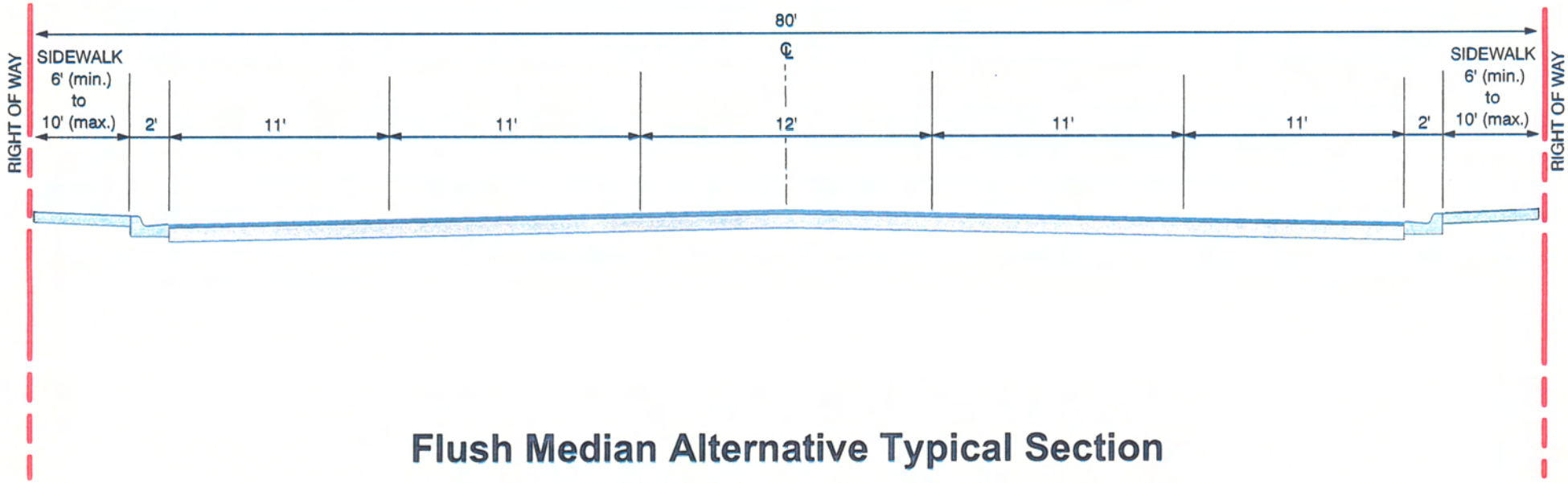
Figure 8-5

In May 2002, the City of Winter Park initiated an independent study of an additional typical section alternative for the SR 15/600 (US 17/92) mainline improvement. This alternative is shown in Figure 8-6 and provides four (4) 11 foot wide travel lanes, two (2) in each direction, separated by a 12 foot wide flush median (continuous two-way center left-turn lane). The border area along both sides of this alternative would support a 2 foot wide curb and gutter system and a minimum 6 foot wide concrete sidewalk, located flush with the back of curb. The actual sidewalk width would vary up to 10 feet and would be accomplished by relocating the existing curb line inward toward the existing roadway centerline. Existing curb inlet tops would be replaced and additional drainage structures would be required to tie into the existing stormwater conveyance system. These improvements would be accommodated within the existing 80 foot right-of-way.

The City of Winter Park completed its development of the Flush Median Alternative in September 2002. The City also advised FDOT of its plan to modify the existing four-lane Denning Drive corridor and developed an improvement alternative for Denning Drive that consists of a two (2) lane undivided collector (one lane in each travel direction) with on-street parking, bicycle lanes and sidewalks along both sides of the proposed roadway. The City of Winter Park's proposed typical section for Denning Drive is shown in Figure 8-7.

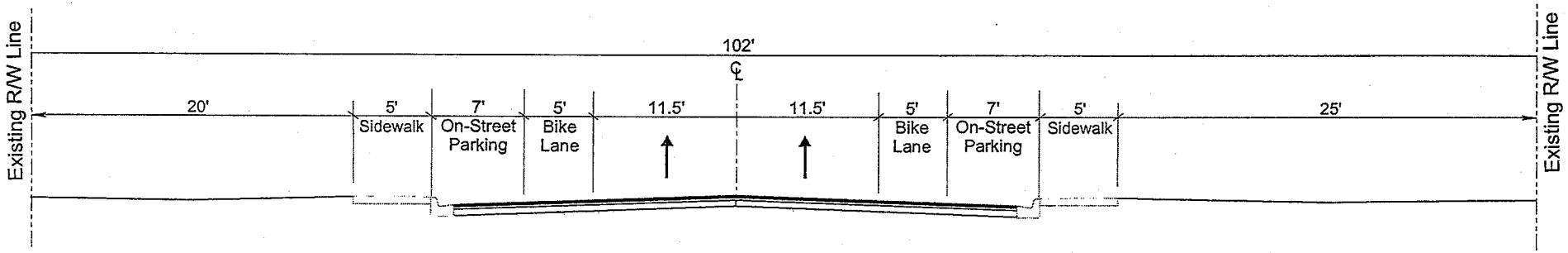
A series of coordination meetings were subsequently held with the City of Winter Park during the evaluation of the alternatives described above. Several issues were discussed regarding the advantages and disadvantages of a Raised Median Alternative (Figures 8-1 through 8-4) and a Flush Median Alternative (Figure 8-6). Additional factors were evaluated for these mainline improvement alternatives including: safety and access management; construction impacts related to relocating the existing curb line and overall constructability of the proposed roadway improvements; maintenance of traffic during construction; opportunities for bicycle, pedestrian and landscape features; capacity of parallel corridors (ie Denning Drive, Harper Street, Executive Drive); signal modifications at Webster Avenue and Solana Avenue; and, the Lee Road Extension. Below is a summary of these evaluation factors.

Safety and Access Management: Case studies from Florida and throughout the United States have shown that the potential for crash occurrences may be reduced along heavily congested facilities such as SR 15/600 (US 17/92) when median modifications are introduced. Restricted left-turns and limited median openings reduce the potential for turning movement conflicts. Proper channelization and the



Flush Median Alternative Typical Section

Figure 8-6



Denning Drive Proposed Typical Section

(Typical Section Based on Isometric Rendering from Glatting Jackson Kercher Anglin Lopez Rinehart, Inc. & City of Winter Park)

Figure 8-7

use of left turn lanes at signalized intersections also helps minimize vehicular conflicts. Median modification as an access management tool has been successful on similar corridors in Central Florida. In most cases, however, the ability to negotiate u-turns at mid-block openings or at signalized intersections has contributed to the success of these improvements. Given the right-of-way and pavement width constraints along SR 15/600 (US 17/92) from Orange Avenue to Lee Road, provisions for u-turns at select locations would require right-of-way acquisition. Due to the commercialized nature of the existing corridor, right-of-way acquisition for any type of improvement will be costly. The use of parallel corridors such as Denning Drive, Harper Street and Executive Drive becomes even more important in developing an access management strategy that minimizes disruption to existing travel patterns.

For Alternative Typical Sections Number 1, 2, 3 and 4, a viable access management plan would need to be developed to maintain an acceptable level of service for access to adjacent properties. The Flush Median Alternative essentially maintains the existing travel behavior pattern with regard to access to adjacent properties to and from the mainline.

Construction Impacts: Several construction and constructability issues were evaluated during the alternatives analysis for SR 15/600 (US 17/92). Among the most significant of these issues was the proposed relocation of the existing curb line associated with Alternative Typical Section Number 4 and the Flush Median Alternative. An extensive analysis of this condition was performed and concluded that the relocation of the curb line for either a Raised Median Alternative or Flush Median Alternative would be viable. The relocation of the curb line for the Flush Median Alternative involves more distance; however, it allows more opportunity to develop a wider sidewalk.

Overall constructability of the proposed roadway improvements was another construction-related issue addressed during the study. Portions of the existing concrete pavement will need to be removed to accommodate either alternative. The placement of existing and proposed longitudinal joints along the existing vehicle wheel path may pose an operational problem. In addition, the existing roadway was constructed using a parabolic crown. Impacts to the existing and proposed cross slope were evaluated for Alternative Typical Section Number 4 and the Flush Median Alternative, both of which propose to relocate the existing curb line toward the roadway centerline.

Maintenance of Traffic (MOT) During Construction: This is an important element in the alternatives analysis and affects each concept, particularly the alternatives that propose to relocate the existing curb line.

MOT will be handled using standard FDOT Indices. Traffic will be shifted to one side using all existing pavement outside of the work zone and the drainage system/new curb will be constructed while traffic has been shifted. Work will then be shifted to the newly constructed side along with the remaining existing pavement to allow for construction of the opposite drainage system/new curb. The number of lanes to be maintained (4 versus 5) during construction will be determined by the existing traffic requirements.

Options may include shifting traffic and maintaining four (4) lanes which requires the two inside lanes to serve as both through and turn lanes. This provides the maximum work zone area. If traffic dictates, the work zone would be minimized and travel lane width reduced to provide a five (5) lane section. In either option, access to the existing businesses is critical. This is handled by standard details which specify "Business Entrance" signs. The median work will likely be completed after the outside work is completed. Due to right-of-way and traffic constraints, there may be no option except go to a four (4) lane section. All work will most likely be done behind concrete traffic barrier. This presents a problem due to the numerous openings required for businesses but is possible.

Pavement markings are removed through methods in the FDOT Specifications Book. These methods include water blasting or grinding. Water blasting may work best on the existing concrete pavement. Once the existing pavement markings are removed, temporary striping will be placed for the MOT either using tape or paint. Tape is ideal because it is easier to remove and reapply for the different lane shifts; however, there may be concerns with the temporary tape coming up during long durations. Final treatment of the concrete pavement should include a diamond grind of the entire area and then apply final pavement markings.

Bicycle, Pedestrian and Landscape Features: Each of the alternative typical sections would provide varying degrees of bicycle, pedestrian and landscape features.

Alternative Typical Section Number 1 provides a designated 4 foot wide bicycle lane facility adjacent to the outside travel lane in both directions; however, the existing 4 ½ foot wide sidewalk, which is located adjacent to the curb, would remain. This would not meet current FDOT standards established in the Plans Preparation Manual which specifies a minimum 6 foot wide sidewalk when located adjacent to the curb. Limited landscaping opportunities would be provided within the 13 foot wide median.

Alternative Typical Section Number 2 provides a 14 ½ foot wide outside travel lane in both directions which would accommodate experienced

bicyclists; however, the existing 4 ½ foot wide sidewalk, which is located adjacent to the curb, would remain. This would not meet current FDOT standards established in the Plans Preparation Manual which specifies a minimum 6 foot wide sidewalk when located adjacent to the curb. Landscaping opportunities would be improved compared to Alternative Typical Section Number 1 and would be accommodated within the 15 foot wide median.

Alternative Typical Section Number 3 also provides a 14 ½ foot wide outside travel lane in both directions which would accommodate experienced bicyclists; however, the existing 4 ½ foot wide sidewalk would be widened to the outside either by direct right-of-way acquisition or easement agreement. This would allow a minimum 6 foot wide sidewalk which meets current standards established in the FDOT Plans Preparation Manual. Landscaping opportunities would be improved compared to Alternative Typical Section Number 1 and would be accommodated within the 15 foot wide median. Additional roadside edge treatments may be accommodated within the wider sidewalk dimension.

Alternative Typical Section Number 4 would not accommodate bicyclists directly on the mainline. The existing 4 ½ foot wide sidewalk would be widened to the inside by relocating the existing curb line toward the existing centerline. This would allow a minimum 6 foot wide sidewalk which meets current standards established in the FDOT Plans Preparation Manual. Landscaping opportunities would be improved compared to Alternative Typical Section Number 1 and would be accommodated within the 15 foot wide median. Additional roadside edge treatments may be accommodated within the wider sidewalk dimension.

The Flush Median Alternative would not accommodate bicyclists directly on the mainline. The existing 4 ½ foot wide sidewalk would be widened to the inside by relocating the existing curb line toward the existing centerline. This would allow a minimum 6 foot wide sidewalk which meets current standards in the FDOT Plans Preparation Manual. Landscaping opportunities could be accommodated within the 12 foot wide median and would include pedestrian refuge islands at select locations. Additional roadside edge treatments may be and accommodated within the wider sidewalk dimension. This feature may be enhanced due to the additional width that would be available as compared to Alternative Typical Section Number 4.

Parallel Corridors: As previously mentioned, the use of parallel corridors such as Denning Drive, Harper Street, and Executive Drive is a vital part of the overall congestion management strategy regardless of which alternative is implemented. These off system facilities can be utilized to provide additional capacity, improve overall traffic operations,

provide alternate access to adjacent properties and provide bicycle facility alternatives. The latter is especially important for Alternative Typical Section Number 4 and the Flush Median Alternative where bicycle facility improvements directly on the mainline are not feasible.

Signal Modifications: The alternatives analysis included the evaluation of signal modifications particularly at Webster Avenue and Solana Avenue.

As previously mentioned, the removal of the existing signal at Webster Avenue was a condition of approval for construction of the Winter Park Village and installation of the traffic signal at Gay Road. Removal of the signal at Webster Avenue and the modification of the associated median opening are expected to enhance traffic operations in this area by providing the desirable distance between the remaining signals at Gay Road and Lee Road (minimum 1,320 foot spacing). The median modification at Webster Avenue would involve a northbound directional median opening allowing right turns in all four quadrants and left turns only in the SR 15/600 (US 17/92) northbound direction.

In the City of Winter Park's Corridor Master Plan for SR 15/600 (US 17/92), the existing Park Avenue signal was recommended to be removed and replaced by a signal at Solana Avenue, located approximately 800 feet south of Park Avenue. This was recommended to encourage utilization of Solana Avenue which has a direct connection to Denning Drive. This connection is utilized in the present condition as a "bypass" around the heavily congested SR 15/600 (US 17/92) corridor. The implementation of a signal at Solana Avenue was re-evaluated during the PD&E Study; however, it was determined that the Park Avenue signal should remain. A signal at Solana Avenue would potentially control the turning movements destined for the Denning Drive area; however, a full signal warrant analysis was not performed under this PD&E Study scope of services.

Lee Road Extension: Another critical element of the alternatives analysis is the potential extension of Lee Road from SR 15/600 (US 17/92) to a connection with Denning Drive at Solana Avenue. The Lee Road extension is anticipated to provide better distribution of traffic destined for the municipality of Winter Park and is anticipated to alleviate congestion at the SR 15/600 (US 17/92) intersection at Webster Avenue. This condition may be further alleviated by the removal of the existing signal at Webster Avenue.

Initially, the Lee Road extension was developed as a four-lane arterial which would connect to the existing four-lane Denning Drive. A total of three alignment alternatives were developed to determine the most viable location for this new alignment. Each of these alignment alternatives are

shown in Appendix C of this Report.

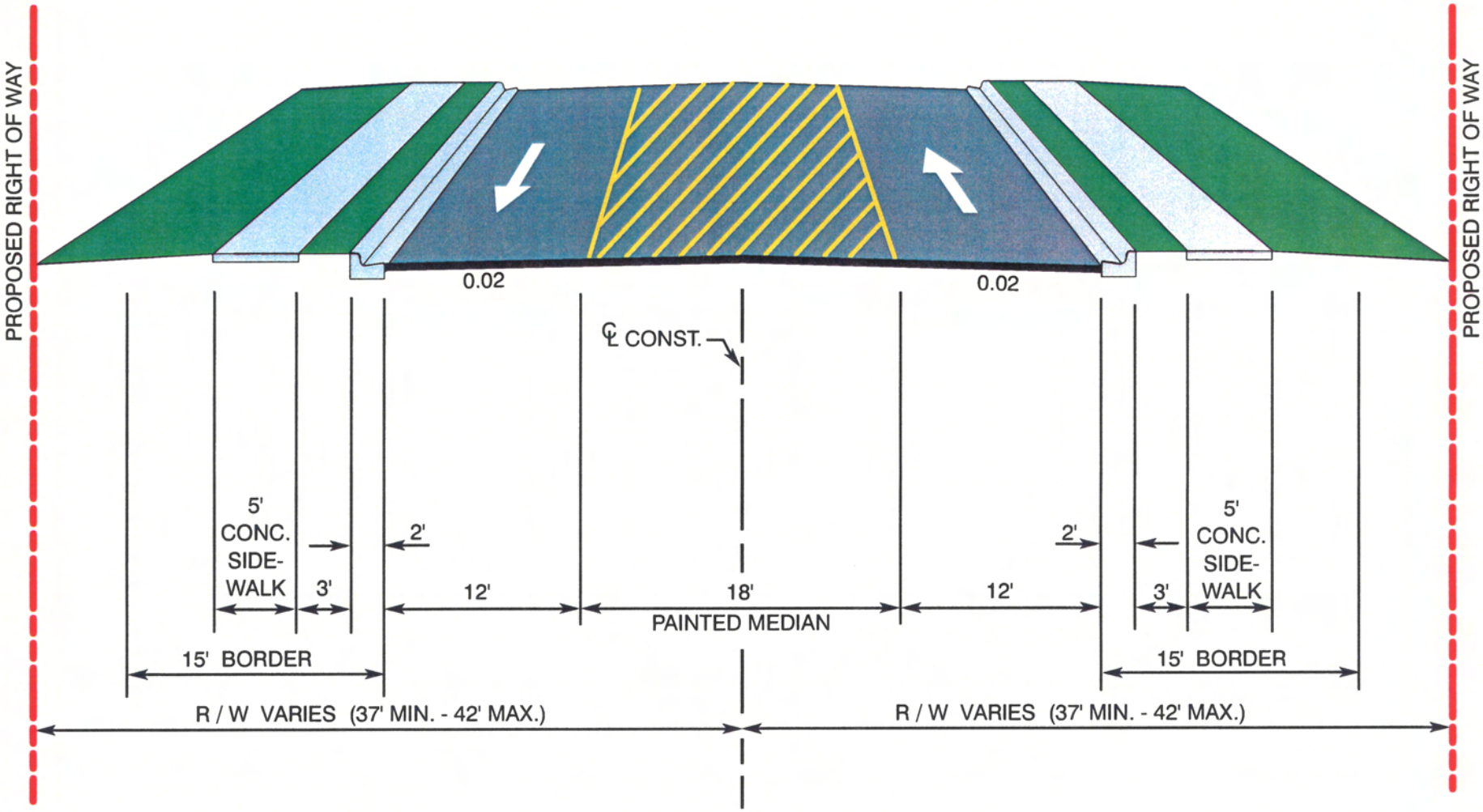
Based on the design year travel demand forecasts at the Lee Road intersection with SR 15/600 (US 17/92), the proposed intersection geometry would affect each of the existing intersection quadrants in varying degree, as shown on the concept maps located in Appendix C. Due to the City of Winter Park's alternative plans for the Denning Drive corridor, the typical section for the Lee Road extension was modified to a two-lane section as shown in Figure 8-8. This also allowed for a modification of the proposed intersection geometry at SR 15/600 (US 17/92) and minimized right-of-way impacts at this location. The revised Lee Road extension conceptual design is shown in Appendix C of this Report.

Based on the results of the alternatives analysis which included extensive coordination with the City of Winter Park, two (2) viable project alternatives were identified and retained for further evaluation. These include Alternative Typical Section Number 4, hereinafter referred to as the Raised Median Alternative, and the Flush Median Alternative. These were presented to the public at an Alternatives Public Meeting which was held on May 8, 2003. Aerial maps showing the viable project alternatives are located in Appendix C along with the revised Lee Road extension conceptual design.

8.3.3 VIABLE ALTERNATIVES CONSIDERED FOR FURTHER STUDY

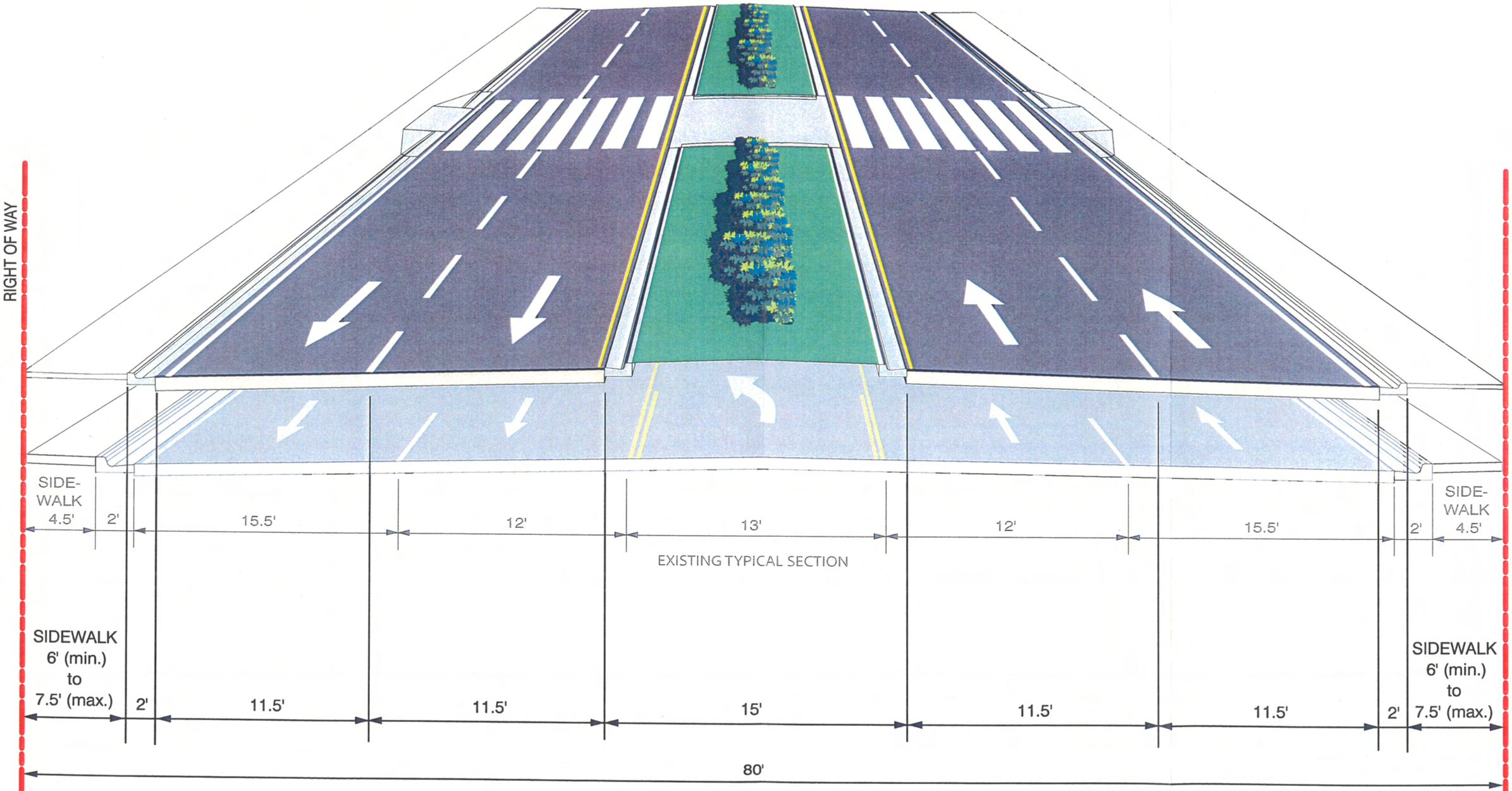
Based on the technical analysis performed for the SR 15/600 (US 17/92) PD&E Study, two (2) project alternatives were identified as viable alternatives for the proposed congestion management improvements. These are the Raised Median Alternative (Figure 8-9) and Flush Median Alternative (Figure 8-10). Below is a summary description of each alternative. Appendix C contains aerial photographs depicting the conceptual design elements of each alternative. Appendix C also contains the conceptual design plans for the proposed Lee Road extension which is common to both project alternatives.

The Raised Median Alternative (Figure 8-9) provides four (4) 11 ½ foot wide travel lanes, two (2) in each direction, separated by a 15 foot wide raised median (with Type E curb and gutter). The border area along both sides of this typical section alternative includes a 2 foot wide curb and gutter for stormwater conveyance and a minimum 6 foot wide concrete sidewalk, located flush with the back of curb. The actual sidewalk width would vary up to 7 ½ feet and would be accomplished by relocating the existing curb line inward toward the outside travel lane. Existing curb inlet tops would be replaced and additional drainage structures would be required to tie into the existing stormwater conveyance system. These



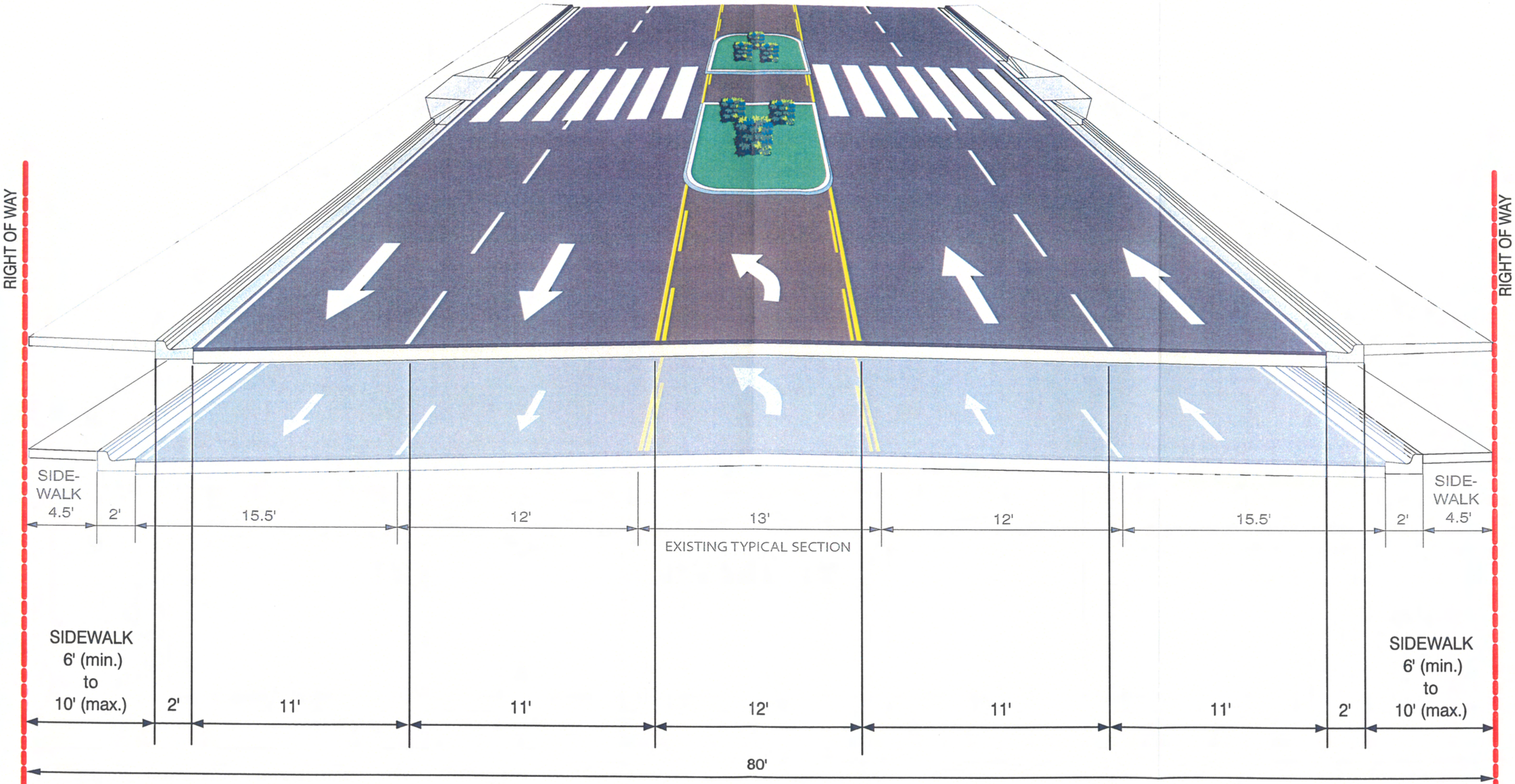
Revised Lee Road Extension Typical Section

Figure 8-8



RAISED MEDIAN TYPICAL SECTION
ALTERNATIVE 1

Figure 8-9



FLUSH MEDIAN TYPICAL SECTION
ALTERNATIVE 2

Figure 8-10

improvements would be accommodated within the existing 80 foot right-of-way from Orange Avenue to Lee Road. Minor median modifications would be made in the segment from Norfolk Avenue to Orange Avenue and from Lee Road to Monroe Street. These improvements are shown in Appendix D.

This alternative provides a divided median and limits left turn movements to and from the mainline. Turn lane improvements are provided at major intersections and u-turns would be accommodated at select locations. Parallel corridors such as Denning Drive, Harper Street, Schultz Avenue and Balch Avenue would be utilized to provide traffic circulation and access management. Right-of way along the mainline would be required at the following locations:

- Southbound at Miller Avenue: Accommodates bus pull out. U-turns would be allowed at this location in the northbound direction between Orange Avenue and Minnesota Avenue.

- Fairbanks Avenue: Accommodates intersection improvements and bus pull outs. U-turns would be allowed in the northbound and southbound directions at this location.

- Beachview Avenue: Accommodates bus pull out. U-turns would be allowed in the northbound direction at this location between Fairbanks Avenue and Morse Boulevard.

- Symonds Avenue: Accommodates bus pull out. U-turns would be accommodated in the southbound direction at this location between Morse Boulevard and Gay Road.

- Trovillion Avenue: Accommodates bus pull out. U-turns would be accommodated in the northbound direction at this location between Morse Boulevard and Gay Road.

- Solana Avenue: Accommodates intersection improvements.

Additional median openings and turn lane geometry is shown on the conceptual design plans in Appendix D.

The Flush Median Alternative is shown in Figure 8-10 and provides four (4) 11 foot wide travel lanes, two (2) in each direction, separated by a 12 foot wide flush median (continuous two-way center left-turn lane). The border area along both sides of this alternative would support a 2 foot wide curb and gutter system and a minimum 6 foot wide concrete sidewalk, located flush with the back of curb. The actual sidewalk width would vary up to 10 feet and would be accomplished by relocating the

existing curb line inward toward the outside travel lane. Existing curb inlet tops would be replaced and additional drainage structures would be required to tie into the existing stormwater conveyance system. These improvements would be accommodated within the existing 80 foot right-of-way from Orange Avenue to Lee Road. Minor median modifications would be made in the segment from Lee Road to Monroe Street. These improvements are shown in Appendix D.

This alternative provides a flush median similar to the existing condition and essentially allows unrestricted left turn movements to and from the mainline. At select locations (shown in Appendix D) landscaped median islands with mountable curb would be provided. Parallel corridors such as Denning Drive, Harper Street, Schultz Avenue and Balch Avenue would be utilized to provide additional traffic circulation and access management. Right-of way along the mainline would only be required for this alternative at the Fairbanks Avenue intersection (westbound approach).

The City of Winter Park has verbally committed to continue evaluating access management strategies associated with the Flush Median Alternative including the modification of existing driveways along SR 15/600 (US 17/92). Through negotiation with existing property owners and during the implementation of its Community Re-development Plan, the City is in the process of consolidating driveway access points in order to reduce the number of conflict points along the mainline. The proposed driveway closures and/or consolidations documented to date (May 2003) are shown on the conceptual design plans for the Flush Median Alternative (Appendix D).

In addition, as part of the overall system improvements, Lee Road would be extended from its current terminus at SR 15/600 (US 17/92) to a connection with Denning Drive and Solana Avenue. The proposed typical section for this new alignment (Figure 8-8) would require up to 84 feet of right-of-way and would provide a 12-foot wide travel lane in each direction. Intersection improvements along the Lee Road extension would be made at SR 15/600 (US 17/92) and at Denning Drive/Solana Avenue (see Appendix D).

The proposed improvements for both typical section alternatives (Raised Median and Flush Median) include the removal of the existing Webster Avenue signal and development of a northbound directional median opening. Right turns would be permitted in all four quadrants of the Webster Avenue intersection; however, left turns would be restricted to the northbound SR 15/600 (US 17/92) direction only.

The proposed improvements for both typical section alternatives (Raised

Median and Flush Median) also include a potential new signal at Solana Avenue. It is recommended that a full signal warrant analysis be conducted in subsequent project development phases (ie: final design).

8.4 Evaluation Matrix

Each of the viable project alternatives described above were evaluated in terms of potential social, economic and environmental impacts. Table 8-1 shows the evaluation matrix which was prepared to summary these potential project impacts. Below is a brief summary of the potential project impacts associated with each of the viable project alternatives.

Raised Median Alternative: Twenty-six (26) existing properties would be impacted by this alternative. A total of six (6) residential relocations would be required which are associated with the Lee Road extension and up to three (3) businesses may be displaced. One (1) school site, the Orange County Vocational Technical School, would be impacted. Up to sixty-four (64) potential contamination sites may be impacted. Thirty-five of these sites are reported to have a Low probability of contamination while eight (8) have a Medium probability and twenty-one (21) have a High probability. The total estimated cost for this improvement, including the Lee Road extension, is up to $20.77 million and is accounted for as follows:

Preliminary Engineering:	$0.33 million
Right-of-way Acquisition:	$16.7 million
Construction:	$3.25 million
Construction Engineering and Inspection (CEI):	$0.49 million
Total Project Cost:	up to 20.77 million

Flush Median Alternative: Fifteen (15) existing properties would be impacted by this alternative. A total of six (6) residential relocations would be required which are associated with the Lee Road extension and up to two (2) businesses may be displaced. One (1) school site, the Orange County Vocational Technical School, would be impacted. Up to sixty-four (64) potential contamination sites may be impacted. Thirty-five of these sites are reported to have a Low probability of contamination while eight (8) have a Medium probability and twenty-one (21) have a High probability. The total estimated cost for this improvement, including the Lee Road extension, is up to $15.47 million and is accounted for as follows:

Preliminary Engineering:	$0.28 million
Right-of-way Acquisition:	$12.0 million
Construction:	$2.77 million
Construction Engineering	

and Inspection (CEI):	$0.42 million
Total Project Cost:	up to 15.47 million

8.5 Preferred Alternative

Based on the technical analysis performed for the SR 15/600 (US 17/92) PD&E Study and in consideration of the public and public agency input received during the study, the preferred build alternative was identified as the Flush Median Alternative as shown in Figure 8-10. Section 9.0 of this report summarizes the preliminary engineering details for this preferred alternative which was presented at a Public Hearing on November 13, 2003.

Evaluation Matrix

SR 15/600 (US 17/92) Project Development and Environment Study
From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Evaluation Measure	Alternative 1 (Raised Median)	Alternative 2 (Flush Median)	No-Build
Travel Service			
Access Management	Left Turns Restricted	Left Turns Unrestricted	No Improvement
	Alternate Roadways	Alternate Roadways	
	U-turns at Select Locations	Driveway Modifications (1)	
Intersection Improvements	Yes	Yes	No Improvement
Extension of Lee Road	Yes	Yes	No Improvement
Bicycle Facility Improvements	Yes, Along Denning Drive (2)	Yes, Along Denning Drive (2)	No Improvement
Pedestrian Facility Improvements	Yes, 6-foot Minimum Sidewalk	Yes, 6-foot Minimum Sidewalk	No Improvement
Social/Cultural Environment			
Number of Parcels Impacted	26	15	None
Potential Residential Relocations	6	6	None
Potential Business Displacements	3	2	None
School Sites Impacted	1	1	None
Physical Environment			
Potential Contamination Sites Impacted	64 Total	64 Total	None
Low Potential	35	35	None
Medium Potential	8	8	None
High Potential	21	21	None
Project Costs (in Millions, 2002 dollars)			
Preliminary Engineering (3)	$0.33	$0.28	$0.00
Right-of-Way Acquisition	Up to $16.7	Up to $12.0	$0.00
Construction (4) (5)	$3.25	$2.77	Annual Maintenance
Construction Engineering and Inspection (6)	$0.49	$0.42	$0.00
Total Project Costs	Up to $20.77	Up to $15.47	Annual Maintenance

Notes:

(1) Driveway Modifications to be facilitated by the City of Winter Park.
(2) Bicycle Facility Improvements will involve joint participation between FDOT and the cities of Maitland, Winter Park and Orlando.
(3) Preliminary Engineering Costs estimated at 10% of total Construction Cost.
(4) Construction Cost includes Basic Improvement, Lee Road Extension and contingencies for Legal and Administrative costs.
(5) Construction Cost does not include improvements to be funded by the City of Winter Park.
(6) Construction Engineering and Inspection estimated at 15% of total Construction Cost and includes Post Design Services.

9.0 PRELIMINARY DESIGN ANALYSIS

The following section presents the results of the preliminary design analysis conducted for the preferred project alternative which was identified in Section 8.7.

9.1 Design Traffic Volumes

The information in this section was developed from the document entitled SR 15/600 (US 17/92) Design Traffic Technical Memorandum prepared by Gyhabi and Associates, Inc. in October 2002. Ghyabi & Associates, Inc. was retained by the Florida Department of Transportation, District Five, to provide transportation engineering services in association with the Project Traffic for PD&E and Design contract. Their technical memorandum was prepared as part of the services covered under this contract pursuant to the Letter of Authorization for Work Order Number 5, dated November 19, 2001. The scope of the Design Traffic Technical Memorandum entailed the development of future traffic forecasts for no-build and build conditions and the evaluation of the characteristics and basic operational conditions of the corridor during the service life of the roadway improvement project.

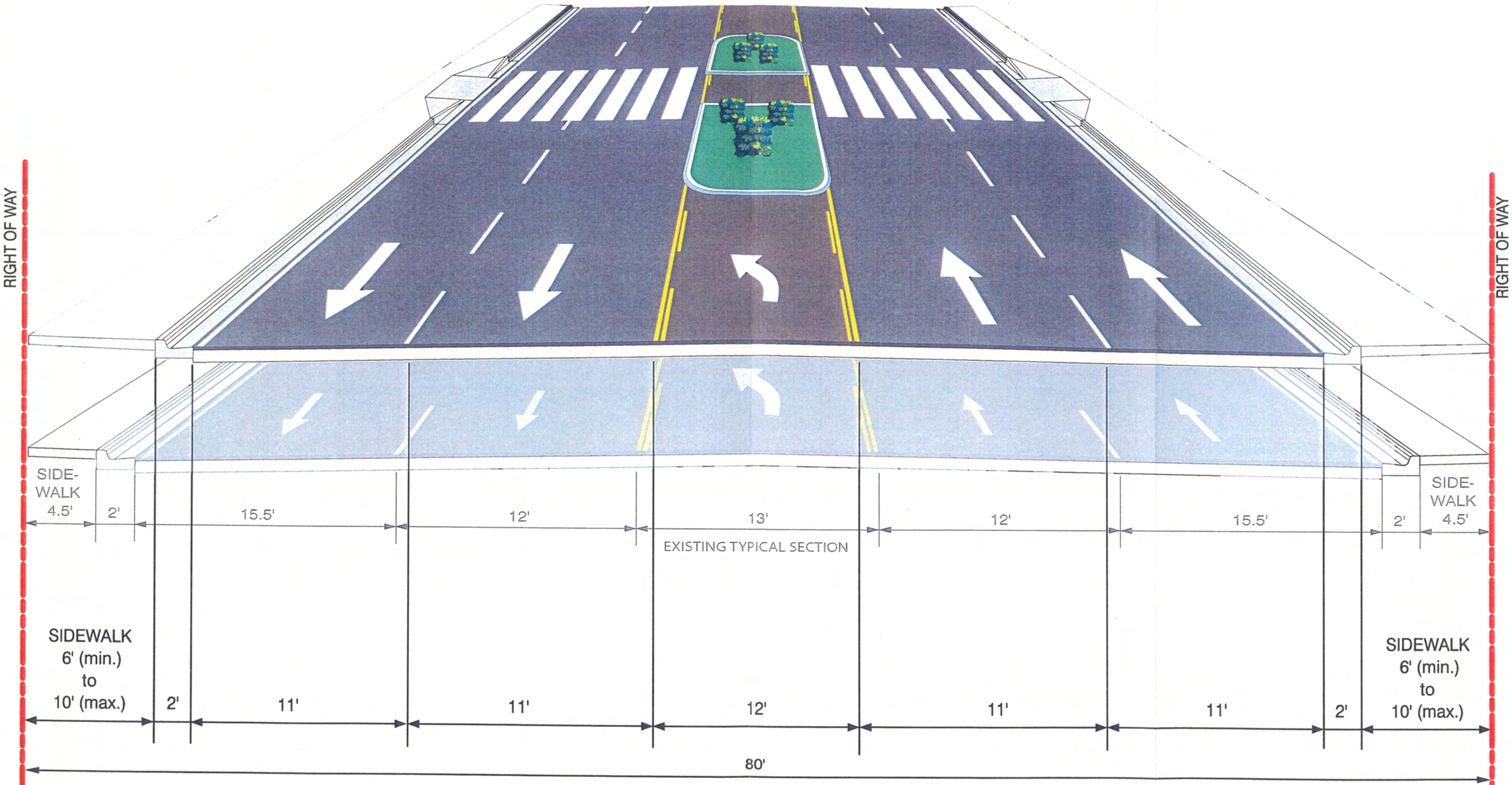
Table 9-1 below presents the recommended design characteristics for the SR 15/600 (US 17/92) PD&E Study.

Table 9-1 Recommended Design Characteristics for SR 15/600 (US 17/92)

Roadway Segment	Recommended		
	K_{30}	D	T_{daily}
SR 15/600 (US 17/92)	8.80%	58.08%	3.13%
SR 426 (Fairbanks Avenue)	8.80%	58.08%	10.66%
SR 423 (Lee Road)	8.80%	58.08%	1.26%
Denning Drive	9.20%	55.61%	4.55%
Side Streets	9.20%	55.61%	3.13%

9.2 Typical Sections

The preferred typical section for the proposed improvements along SR 15/600 (US 17/92) is shown in Figure 9-1. This improvement would generally extend from Norfolk Avenue to SR 423 (Lee Road). This alternative provides four (4) 11 foot wide travel lanes, two (2) in each direction, separated by a 12 foot wide flush median (continuous two-way center left-turn lane).



SR15/600 (US 17/92) Preferred Alternative Typical Section

From Norfolk Avenue to Gay Road

Figure 9-1

The border area along both sides of the proposed improvement would support a 2 foot wide curb and gutter system and a minimum 6 foot wide concrete sidewalk, located flush with the back of curb. The actual sidewalk width may vary up to 10 feet and would be accommodated by relocating the existing curb line inward toward the center of the existing roadway. Existing curb inlet tops would be replaced and additional drainage structures would be required to tie into the existing stormwater conveyance system. These improvements would be accommodated within the existing 80 foot right-of-way. The preliminary engineering concept plans for these improvements are located in Appendix improvements are shown in Appendix B.

This alternative provides a flush median similar to the existing condition and would allow continuous two-way left turn movements to and from the mainline. Landscaped median islands, with mountable curb, are proposed in the vicinity of:

- Leith Avenue (between Camellia Avenue and Garden Drive);
- West Kentucky Avenue in the vicinity of the Chik-Fil-A restaurant;
- West New England Avenue near the Ranch Mall commercial center; and,
- North of Symonds Avenue near the Killarney Condominiums.

The median islands are intended to provide an optional alternative for pedestrian movements across SR 15/600 (US 17/92). The locations indicated above have generally been selected at mid-block locations between existing signalized intersections.

Parallel corridors such as Denning Drive, Harper Street, Schultz Avenue and Balch Avenue would be utilized to provide additional traffic circulation and access management. Right-of way for this alternative would only be required along the westbound approach of the SR 426 (Fairbanks Avenue) intersection.

The City of Winter Park is committed to evaluating additional access management strategies associated with the preferred alternative including the modification, elimination and/or consolidation of existing driveways along SR 15/600 (US 17/92). Through negotiation with existing property owners and during the implementation of its Community Re-development Plan, the City is in the process of consolidating driveway access points in order to reduce the number of conflict points along the mainline. The proposed driveway closures and/or consolidations documented as of the date of the SR 15/600 (US 17/92) Public Hearing (November 13, 2003) are shown on the conceptual design plans in Appendix B.

In addition, as part of the overall system improvements, SR 423 (Lee Road) would be extended from its current terminus at SR 15/600 (US 17/92) to a

connection with Denning Drive and Solana Avenue. The proposed typical section for this new alignment (Figure 9-2) would require up to 84 feet of right-of-way and would provide a 12-foot wide travel lane in each direction. Intersection improvements along the Lee Road extension would be made at SR 15/600 (US 17/92) and at Denning Drive/Solana Avenue, as shown on the conceptual design plans in Appendix B.

9.3 Intersection Concepts and Signal Analysis

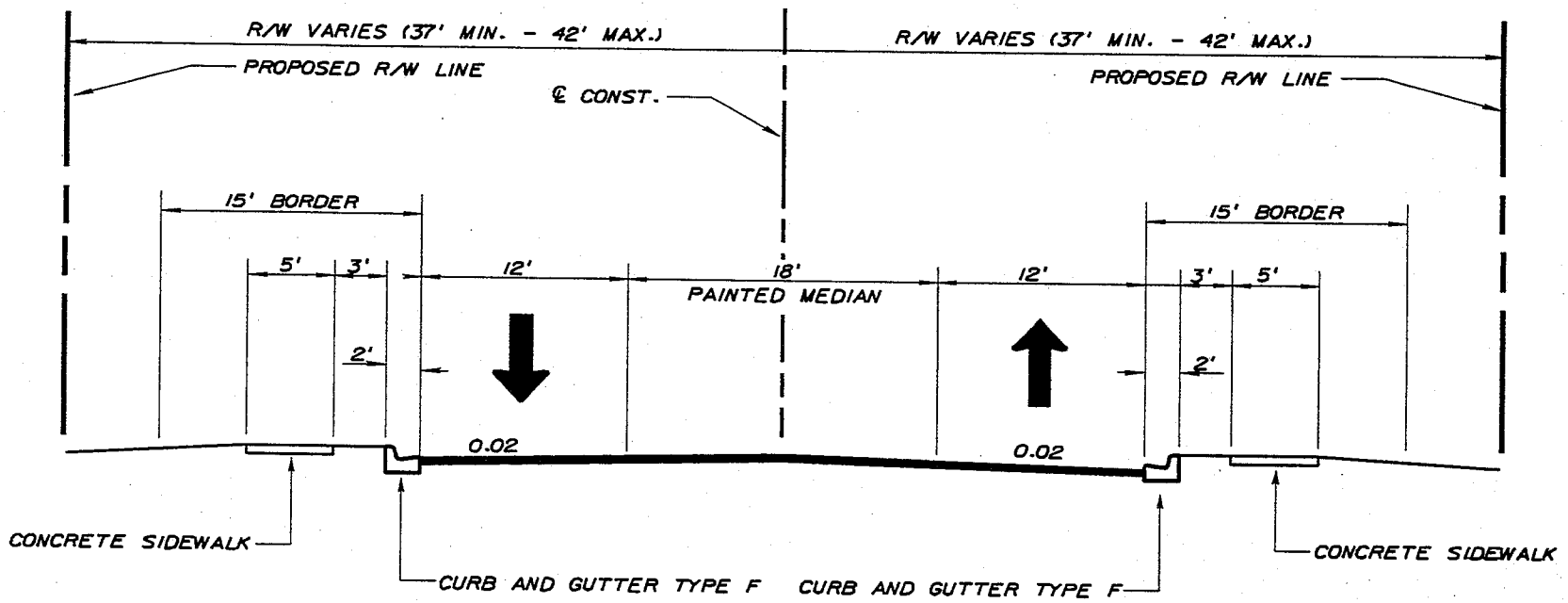
Appendix B contains a set of preliminary engineering plans which shows the conceptual design for intersections along SR 15/600 (US 17/92). Due to the developed nature of the project corridor, intersection improvements where developed to minimize and/or avoid significant right-of-way impacts. As shown on the conceptual design plans in Appendix B, a majority of the improvements involve re-stripping of existing turn lanes to increase turn lane storage with certain exceptions, as noted below:

SR 527 (Orange Avenue): Re-stripping of the eastbound and westbound legs along SR 527 to provide dual left-turn lanes and a combination through/right turn lane on the east and west legs. Signal re-timing and phasing may be required in subsequent project development to accommodate this improvement.

SR 426 (Fairbanks Avenue): Additional right-of-way is recommended in the northeast quadrant in order to provide additional left-turn storage for the westbound-to-southbound movement. The left-turn lane in the west leg of the intersection should also be lengthened as shown to provide additional storage for the eastbound-to-northbound movement.

Webster Avenue: As part of a previous condition of approval for the Winter Park Village, the FDOT had recommended that the existing signal at Webster Avenue by removed. This condition was imposed upon the approval the existing signal at Gay Road, which is located approximately 800 feet south of the Webster Avenue intersection. This particular area, from Gay Road to Lee Road, was identified as one of the most heavily congested sections along SR 15/600 (US 17/92) due in part to the close signal spacing between the existing Gay Road, Webster Avenue and Lee Road signals. Lee Road is located approximately 750 feet north of Webster Avenue. The current spacing between these signalized intersections would not meet current access management criteria for signal spacing on this facility type.

The operational condition between Gay Road and Lee Road, particularly between Webster Avenue and Lee Road, was re-evaluated in the SR 15/600 (US 17/92) PD&E Study and as part of the preferred alternative, it is recommended that the existing signal at Webster Avenue by removed and a directional median opening be installed. The directional median opening would be developed to accommodate northbound left-turns at Webster Avenue.



SR 423 (Lee Road) Extension
Preferred Alternative Typical Section

Figure 9-2

SR 423 (Lee Road): Improvements to the existing Lee Road intersection are recommended to accommodate the proposed Lee Road Extension to Denning Drive and to allow additional turn lane storage in the eastbound and northbound directions where dual left-turn lanes are proposed. In the eastbound direction, the proposed improvement includes the relocation of the eastbound directional median opening at Lewis Drive to Loren Avenue, located approximately 330 feet west of Lewis Drive. This will allow the development of increased turn lane storage along Lee Road. The proposed intersection details affecting Lee Road and the Lee Road Extension are shown in Appendix B.

Lee Road Extension/Denning Drive: As previously mentioned, the preferred alternative involves the extension of SR 423 (Lee Road) from its existing terminus at SR 15/600 (US 17/92) to a connection with Denning Drive near Solana Avenue. Figure 9-3 shows the proposed intersection layout for the connection at Denning Drive. This concept was developed with input from the City of Winter Park.

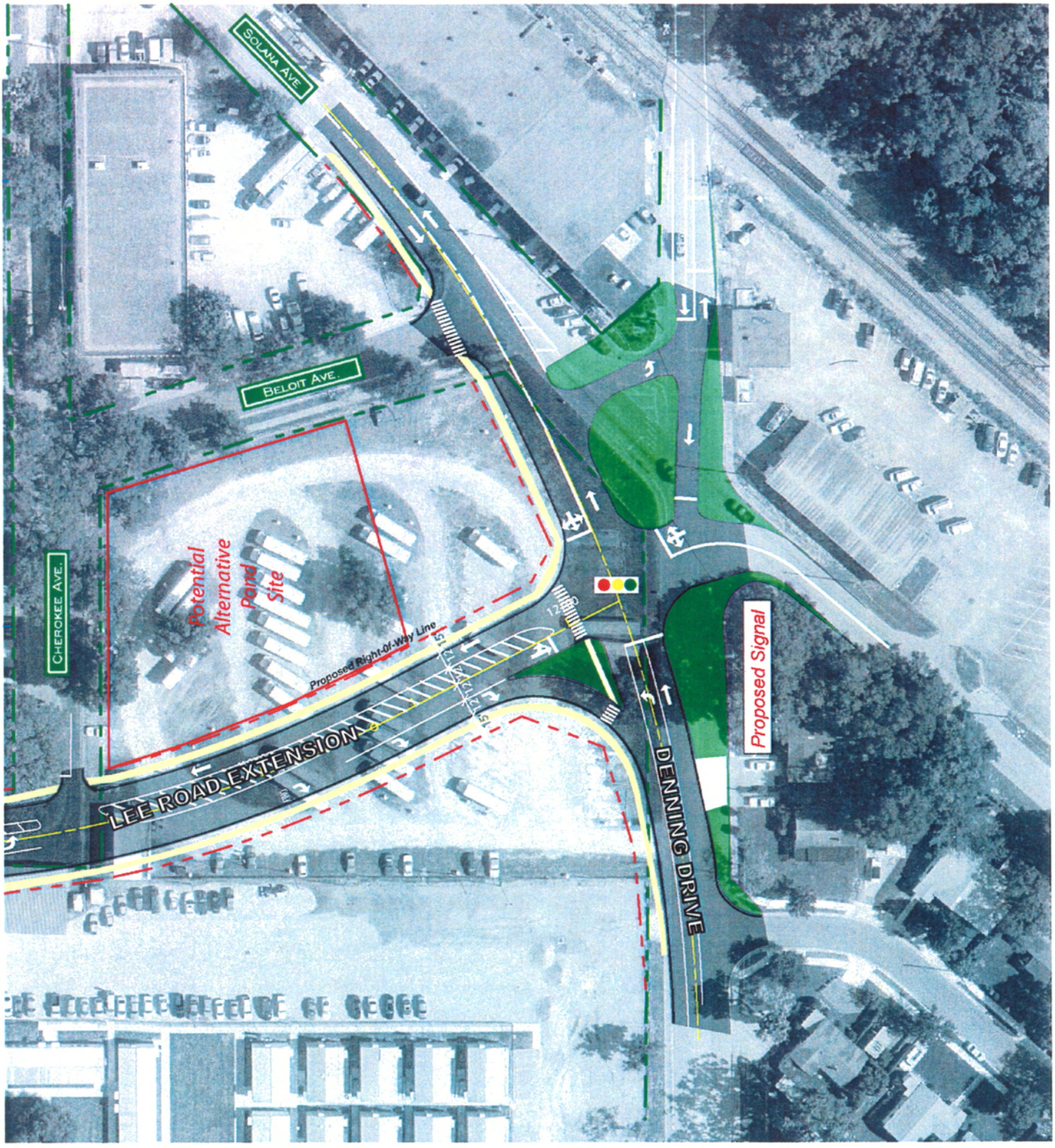
Solana Avenue: Solana Avenue is currently an un-signalized intersection located just south of the study termini near Monroe Street. Solana Avenue provides an alternate access to the Denning Drive corridor and motorists currently use this facility as an alternative to access Webster Avenue and the interior of Winter Park. Minor intersection improvements at the SR 15/600 (US 17/92) intersection with Solana Avenue are recommended as shown on the conceptual design plans in Appendix B. The intersection design concept shown at Solana Avenue would accommodate potential turn lane geometry for a signalized intersection. Based on public and public agency input received during the study, it is recommended that a Traffic Signal Warrant Analysis be conducted during final design at this location.

9.4 Alignment and Right-of-Way Needs

Right-of-way for the proposed improvements identified in this report is required at the following locations:

Fairbanks Avenue: Northeast quadrant of the intersection at the Winter Park Bowling Center.

Lee Road Extension: This improvement involves an alignment on new location and would require right-of-way acquisition. The Lee Road Extension concept and associated intersection improvements is shown in Appendix B. Alternative stormwater management concepts associated with the Lee Road Extension is also shown in Appendix B (Lee Road Extension approximate Station 6+00 and Station 10+00.



Lee Road Extension and Denning Drive

SR 15/600 (US 17/92) Project Development and Environment Study
From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Figure 9-3

Solana Avenue: Right-of-way acquisition may be required in the southeast quadrant of this intersection in order to accommodate potential intersection improvement as shown in Appendix B. These improvements would improve the turning radii at the intersection and would allow additional turn lane storage for the southbound to eastbound left-turn. This design concept may be re-evaluated during subsequent project development and in conjunction with the Traffic Signal Warrant Analysis, if preformed.

9.5 Relocation

The preferred alternative and recommended stormwater management plan will not displace any single-family residences, multi-family residences, institutional facilities or other community facilities. Up to two (2) business relocations may be required as a result of the Lee Road Extension. These businesses are currently located in the Corporate Square business center in the northeast quadrant to the SR 423 (Lee Road) intersection at SR 15/600 (US 17/92). The potential business displacements should be re-evaluated in subsequent project development to ensure accuracy in the number and type of businesses potentially affected. The Corporate Square complex has experienced a high turn-over rate in the past.

9.6 Project Costs

9.6.1 RIGHT OF WAY COSTS

The preferred alternative as presented in this report, including the Lee Road Extension and proposed stormwater management areas, were plotted on aerial raster imagery depicting the acquisition of each impacted parcel. The area of the acquisition for each affected parcel was then estimated for FDOT's use in developing representative right-of-way costs.

The right-of-way costs, including administrative support costs, operational costs and land costs were estimated for each affected parcel. The total estimated right-of-way costs for the preferred alternative, based on 2003 dollars, is approximately $12.0 million.

9.6.2 CONSTRUCTION COSTS

The estimated construction cost for the preferred alternative was estimated at $2.77 million (based on 2003 dollars). This figure includes contingencies for legal and administrative fees, construction engineering and inspection (CEI). The construction cost estimate also includes additional drainage costs associated with the outfall pipe systems for each stormwater management area.

The construction cost estimate does not include additional features which may potentially be funded by the City of Winter Park. These additional

features include additional sidewalk width beyond the 6-foot maximum provided by FDOT, pedestrian refuge islands, brick texture overlay for the continuous two-way center turn lane, and landscaping/streetscaping amenities.

9.6.3 PRELIMINARY ENGINEERING COSTS

The estimated Preliminary Engineering cost for the preferred alternative is approximately $1,500,000.00 which includes field survey, roadway design, drainage design, signing and marking plans, maintenance of traffic plans and other contingency items.

9.6.4 ENVIRONMENTAL MITIGATION

Impacts to natural environment features such as jurisdictional wetlands and critical wildlife habitat are not expected to occur; therefore, environmental mitigation costs are not anticipated.

9.6.5 TOTAL PROJECT COSTS

The total cost of the preferred alternative, including preliminary engineering, right-of-way acquisition and construction, is estimated at $16.27 million, based on 2003 dollars.

9.7 Recycling and Salvageable Material

The opportunity to recycle any salvageable materials by the contractor is encouraged by the FDOT. Any salvageable materials will be identified during the final design of the project. If these materials should be removed from the construction site, it is to be done as specified in the current FDOT Standard Specifications for Road and Bridge Construction. It is anticipated that a majority of the existing concrete pavement will be salvaged.

9.8 User Benefits

Highway user costs are defined by AASHTO's *A Manual on User Benefit Analysis of Highway and Bus-Transit Improvements*, 1977, as the sum of (1) motor vehicle running costs, (2) the value of the vehicle user travel time and (3) traffic accident cost. User benefits are the cost reductions and other advantages that occur to highway motor vehicle users through the use of a particular transportation facility as compared with the use of another. Benefits are generally measured in terms of a decrease in user costs. The preferred alternative provides user benefits to the extent that it reduces user costs as compared to the "No Project" concept that will operate entirely at an unacceptable level of service. In addition, the improved access management provided with the project should reduce the occurrence rate of many accident types on the roadway.

9.9 Pedestrian and Bicycle Facilities

The proposed action includes the reconstruction and widening of existing concrete sidewalks. These improvements would be designed to meet current standards established in the FDOT Plans Preparation Manual. As a minimum, a six-foot wide continuous concrete sidewalk, flush with the back of curb, would be provided on both sides of the roadway from Orange Avenue to Lee Road. This improvement would tie into existing sidewalks south of Orange Avenue and north of Lee Road.

The City of Winter Park has expressed a desire to provide additional sidewalk width and to incorporate opportunities for streetscaping and/or roadside beautification. The additional concrete sidewalk width and potential streetscaping and/or roadside beautification features would be funded by the City of Winter Park and would need to meet FDOT design and permitting standards.

The preferred alternative was developed in association with the City of Winter Park. Due to physical constraints in the existing right-of-way and the desire to minimize and/or avoid significant right-of-way acquisition, the existing bicycle facility along SR 15/600 (US 17/92), which consists of a wide outside travel, would be displaced by the proposed improvement. The City of Winter Park is committed to developing an off system bicycle facility that would be coordinated with the Cities of Orlando and Maitland to ensure compatibility with proposed bicycle system plans south (Orlando) and north (Maitland) of the project. The City of Winter Park has indicated that the proposed off system bicycle facility would involve Denning Drive and would include transitions into and out of the SR 15/600 (US 17/92) at signalized intersections.

9.10 Safety

Safety is a major aspect in the development of the project. Improved pavement conditions, adequate drainage systems, sight distances, roadway geometry, signalization improvements, access management, clear recovery areas and pedestrian and bicycle features are all proposed to improve the safety of this roadway.

9.11 Economic and Community Development

A majority of the existing land uses found within the study area are commercial. Future land uses are expected to remain predominately commercial. The project will not adversely impact any proposed community development or redevelopment activities.

9.12 Environmental Impacts

Detailed studies and evaluations were conducted to determine the potential for adverse impacts that may result from the proposed project. Baseline data, evaluation procedures and analysis of results are contained in the project files and the following reports: Cultural Resources Assessment Survey; Wetland Evaluation Report; Wildlife Habitat Assessment; Air Quality Report; Noise Study Report; and Contamination Screening Evaluation Report. Due to the developed nature of the study area, the potential for environmental impacts is relatively low within the existing right-of-way. Therefore, the selection of the preferred alternative was not primarily influenced by these factors.

Based upon the findings of the study, 64 sites located along the project corridor have the potential for hazardous materials or petroleum contamination. Of the 64 sites, 35 have been assigned a contamination risk potential of Low, 8 were assigned a risk potential rating of Medium and 21 were assigned a risk potential rating of High.

The sites which were rated High (21 total) or Medium (8 total) should be further investigated during the remaining pre-construction phases. This would include, at a minimum, performing a petroleum contamination assessment (PCA) at each of these sites. Should cleanup procedures be required, FDOT will implement a plan prior to, or during construction, if feasible. Special provisions for handling unexpected contamination discovered during construction will be included in the construction plans package. The potential contamination concerns are not anticipated to affect or delay project implementation significantly. No substantial contamination involvement is anticipated.

9.13 Utility Impacts

The final design of this project will be coordinated with the existing utility owners in such a way as to minimize adjustments and disruption of service. The majority of the utilities are situated on FDOT owned right-of-way by maintenance permits and would be relocated at the owner's expense. All utility providers have been notified about the project.

Utility owners within the study area include: the City of Winter Park (potable water and sanitary sewer); the City of Maitland (potable water and sanitary sewer); TECO/Peoples Gas (natural gas); Progress Energy (overhead and underground electric transmission and distribution, including an active sub-station located along SR 15/600 (US 17/92) at Canton Avenue); and, numerous tele-communications, fiber optic and cable companies including Brighthouse Networks, Bell South, Sprint, Sprint Metropolitan, Level 3, Adelphia Business Solutions, Williams Communications, EPIK Communications, MCI Worldcom, AT&T, FP&L FiberNet, and Progress Telecom.

9.14 Traffic Control Plan

A detailed Traffic Control Plan (TCP) will be developed based upon the procedures outlined in Part IV of the MUTCD and Standard Index No. 600 and 624 of FDOT's Roadway and Traffic Design Standards during the design phase of the project. The TCP will include time limitations on the construction activities if necessary to maintain access to adjacent businesses. It will also address how pedestrian traffic will be maintained.

The conceptual plan is as follows. Traffic would be shifted to one side using all existing pavement outside of the work zone and the drainage system/new curb will be constructed while traffic has been shifted. Work will then be shifted to the newly constructed side along with the remaining existing pavement to allow for construction of the opposite drainage system/new curb. The number of lanes to be maintained (4 versus 5) during construction will be determined by the existing traffic requirements at the time of construction.

Options may include shifting traffic and maintaining four (4) lanes which requires the two inside lanes to serve as both through and turn lanes. This provides the maximum work zone area. If traffic dictates, the work zone would be minimized and travel lane width reduced to provide a five (5) lane section. In either option, access to the existing businesses is critical. This is handled by standard details which specify "Business Entrance" signs. The median work will likely be completed after the outside work is completed. Due to right-of-way and traffic constraints, there may be no option except go to a four (4) lane section. All work will most likely be done behind concrete traffic barrier. This presents a potential problem due to the numerous openings required for businesses but is possible.

Pavement markings may be removed through methods in the FDOT Specifications Book. These methods include water blasting or grinding. Water blasting may work best on the existing concrete pavement. Once the existing pavement markings are removed, temporary striping will be placed for the MOT either using tape or paint. Tape is ideal because it is easier to remove and reapply for the different lane shifts; however, there may be concerns with the temporary tape coming up during long durations. Final treatment of the concrete pavement should include a diamond grind of the entire area and then apply final pavement markings.

It is recommended that a community action plan (CAP) be developed to effectively disseminate public information during construction. Every effort to maintain access to existing business and residential land uses must be made during construction. Disruption to normal operations in these areas must be kept to a minimum.

9.15 Public Involvement

A Public Involvement Program was prepared for the project and an extensive public involvement and public agency coordination program was conducted for this project. This program was developed in compliance with "Project Development and Environment Manual"; Section 339.155, Florida Statute; Executive Orders 11990 and 11988; CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act; and 23 CFR 771. The public involvement and public agency coordination program consisted of several components including Advance Notification, general public involvement (workshops, hearings, small group meetings), a Project Advisory Group (PAG) and local government agency coordination which included the City of Winter Park, the City of Orlando, the City of Maitland, Orange County and the Orlando urban area metropolitan planning organization known as METROPLAN ORLANDO.

The Advance Notification Package was mailed to the Florida State Clearinghouse and local and Federal agencies on February 21, 2002.

As part of the public agency coordination effort, several meetings were held with representatives of local government agencies throughout the course of the study. These included with the City of Orlando, FDOT, and the City of Winter Park. Formal presentations were also provided to METROPLAN ORLANDO and its standing committees at specific project milestone events, as follows:

Project Kickoff: A project kickoff presentation was provided during the January and February 2002 series of METROPLAN ORLANDO meetings.

Project Update: Prior to the Alternatives Public Meeting, a project update was provided to METROPLAN ORLANDO and its committees during the March and April, 2003 series of meetings.

In December 2001, a project kickoff presentation was provided to the City of Winter Park City Council. In May 2002, the City of Winter Park stated that they wished t o partner with the FDOT on the SR 15/600 (US 17/92) PD&E Study. Subsequent coordination with the City of Winter Park included the following:

- **June 2002** - An Introductory partnering meeting was held including representatives from the FDOT, the City of Winter Park and their consultants.

- **July 2002** - Design charrettes facilitated by the City of Winter Park were held to involve the community in preliminary project planning.

- **August 2002** - A presentation was made by City staff to the City of

Winter Park City Council summarizing the results of the charrettes.

- **January – March 2002** – Project coordination meetings were held with the City of Winter Park and their consultants to develop, refine and evaluate the project alternatives.

- **June 2003** - A neighborhood meeting, facilitated by the City of Winter Park, was held with the members of the Sunnyside Homeowners' Association and the Park Grove Homeowners' Association.

- **September 2003** – The City of Winter Park conducted a Public Hearing on September 22, 2003 and approved a resolution of support endorsing the multimodal transportation and safety enhancements developed by FDOT.

The PAG was considered a key component of the SR 15/600 (US 17/92) public involvement program. The core PAG consisted of community residents and business owners within the study area. Technical members of the METROPLAN ORLANDO's standing committees included members from the Transportation Technical Committee (TTC) and the Bicycle/Pedestrian Advisory Committee (B/PAC). Agency and local government representation included staff from METROPLAN ORLANDO, Orange County, the City of Winter Park, the City of Maitland, and FDOT. Two (2) PAG meetings were held during the SR 15/600 (US 17/92) study. The PAG was utilized to identify key project issues and develop solutions for addressing certain areas of concern relating to the community.

Several small group meetings and two (2) informal public workshops were held during the study to introduce the project to the general public and to receive public input into the planning process. A series of three (3) project newsletters were developed and distributed throughout the study process. These were used to disseminate project information and to announce upcoming public meetings. Distribution of the project newsletters was accomplished through direct mail to property owners, business owners/operators, elected and appointed officials, and other interested persons. In addition, the newsletters were distributed through the public school system as well as various apartment complexes and condominium associations within the study area. The volume of newsletters distributed varied from 1,800 to 4,200.

Small group meetings were held with residents of the Orwin Manor neighborhood and business owners in the study area.

The first public workshop was held on April 23, 2002 for the purpose of identifying the project limits and proposed scope of work. Approximately 41 persons attended and there was no stated opposition to the project. On May 8, 2003 an Alternatives Public Workshop was held to present the results of the conceptual design analysis and identify the viable project alternatives for the

interim solution. Approximately 81 persons attended. Opposition to the Lee Road extension was voiced by several members of the communities located near and north of Park Avenue and Denning Drive.

On November 13, 2003, a formal Public Hearing was held to which approximately 85 persons attended. Written comments which were submitted as part of the official Public Hearing record as well as the Public Hearing Transcript and Summary are documented under separate cover.

FDOT developed the proposed project with input and consensus from representatives from local government agencies including METROPLAN ORLANDO, and the City of Winter Park, as well as from the general community. As a result of this extensive public involvement program, potential public controversy was minimized.

9.16 Drainage

The preferred alternative for the mainline improvement requires modification of the existing stormwater management and drainage system. The work involves relocating the existing curb line along both sides of the roadway inward toward the center of the existing roadway. The existing curb may be relocated up to 5.5 feet inward along certain sections to accommodate the proposed roadway typical section.

Curb inlets will need to be added to the roadway to maintain an acceptable spread condition while moving the curb lines inward. During the conceptual drainage analysis for the PD&E Study, it was assumed that at least the existing spread conditions would need to be maintained which would necessitate a total of 142 new inlets. This includes replacement of 79 existing curb inlets and the addition of 63 new inlets along the project length. The specific drainage retrofit requirements for the preferred alternative typical section, assuming the requirement to at least maintain existing spread conditions are reflected in the table below. The preliminary drainage analysis also revealed that if the facility were subject to current spread requirements for new roadways, 162 new inlets would be required, bringing the total number of inlets to 241.

New P-5 Curb Inlet with Pipe Work	39
New P-5 Curb Inlet with Pipe Work and P-7 Manhole	63
New P-5 Curb Inlet	40
Total Number of New Inlets	142
Estimated Construction Cost (Drainage Items Only)	$671,000

An important consideration regarding the drainage retrofit work is the necessary excavations and associated potential for utilities conflicts/relocates. The SR 15/600 (US 17/92) corridor is a well-established urban corridor with many

existing utilities. The drainage retrofit associated with the preferred alternative typical section involves 102 new curb inlets with piping likely to cause utility conflicts.

For the Lee Road Extension, the new roadway design will include Type 'F' curb and gutter, standard FDOT inlets and piping to route surface runoff to the stormwater management system. The proposed stormwater management system includes a stormwater retention pond along the proposed new alignment to serve the new roadway. The proposed retention pond was sized conceptually using St. Johns River Water Management District (SJRWMD) criteria for retention volume in a closed basin and treatment volume requirements for a new roadway. The proposed retention pond was conceptually designed to outfall to the existing Lake Francis system, which is a surface water controlled by a drainage well.

Two (2) alternative pond locations for the stormwater management system described above were developed as shown on the conceptual design plans located in Appendix B.

9.17 Bridge Analysis

This section does not apply since no bridge structures are located within the proposed project limits.

9.18 Special Features

The FDOT and City of Winter Park have agreed to continue working together in developing special features including: the use of a brick texture on the surface of the proposed continuous two-way center turn lane; wider sidewalks; the placement of mid-block pedestrian cross walks and median islands; the development of an off-system bicycle facility for experienced bicyclists; and, potential streetscaping and beautification amenities.

9.19 Access Management

The City of Winter Park has developed a conceptual plan for additional access management features and will continue to coordinate these improvements with FDOT during subsequent project development. These features include the consolidation and/or removal of certain driveway connections along SR 15/600 (US 17/92) during future land development and re-development activities as well as promoting the use of parallel off-system roadway networks such as Harper Street and Balch Avenue, both of which provide north-south travel and access alternatives to SR 15/600 (US 17/92) and Denning Drive.

9.20 Aesthetics and Landscaping

The City of Winter Park has developed a conceptual plan for proposed aesthetic and streetscaping features and will coordinate these improvements with FDOT during subsequent project development. These features include potential landscaping along the proposed sidewalk, brick texture along the continuous two-way center left-turn lane and pedestrian refuge islands with limited landscaping. The cost of these enhancements would be borne by the City of Winter Park through an executed Memorandum of Understanding and Joint Participation Agreement with FDOT.

9.21 Summary of Preferred Alternative

Table 9-2 provides a summary of the preferred alternative presented in this Section.

Evaluation Matrix

SR 15/600 (US 17/92) Project Development and Environment Study
From Norfolk Avenue to Monroe Street
Orange County, Florida
Financial Project ID Number: 408429-1-22-01

Evaluation Measure	Preferred Build Alternative (Flush Median)	No-Build
Travel Service		
Access Management	Left Turns Unrestricted	No Improvement
	Alternate Roadways	
	Driveway Modifications [1]	
Intersection Improvements	Yes	No Improvement
Extension of Lee Road	Yes	No Improvement
Bicycle Facility Improvements	Yes, Along Denning Drive [2]	No Improvement
Pedestrian Facility Improvements	Yes, 6-foot Minimum Sidewalk	No Improvement
Social/Cultural Environment		
Number of Parcels Impacted	15	None
Potential Residential Relocations	0	None
Potential Business Displacements	2	None
School Sites Impacted	1	None
Physical Environment		
Potential Contamination Sites Impacted	64 Total	None
Low Potential	35	None
Medium Potential	8	None
High Potential	21	None
Project Costs (in Millions, 2003 dollars)		
Preliminary Engineering	$1.50	$0.00
Right-of-Way Acquisition	Up to $12.00	$0.00
Construction [3] [4]	$2.77	Annual Maintenance
Total Project Costs	Up to $16.27	Annual Maintenance

Notes:

(1) Driveway Modifications to be facilitated by the City of Winter Park.
(2) Bicycle Facility Improvements will involve joint participation between FDOT and the cities of Maitland, Winter Park and Orlando.
(3) Construction Cost includes Basic Improvement, Lee Road Extension and contingencies for Legal and Administrative costs.
(4) Construction Cost does not include improvements to be funded by the City of Winter Park.

APPENDIX A
Memorandum of Understanding
Between the City of Winter Park and FDOT
Dated June 2, 2004

MEMORANDUM OF UNDERSTANDING

THE STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION

And

THE CITY OF WINTER PARK, A MUNICIPALITY OF THE STATE OF FLORIDA

WHEREAS, it is the policy of the State of Florida, Department of Transportation (Department) and of the City of Winter Park, a municipality of State of Florida (Winter Park) to cooperate with each other in order to maximize the use and allocation of the monetary resources each are entrusted with, and

WHEREAS, the parties hereto mutually agree that the extension of Lee Road from US 17-92 to Denning Drive and the improvements on US 17/92 from Norfolk Avenue to Monroe Street, will benefit the traveling public and will enhance the transportation system in the area, and

WHEREAS, the parties further agree that the construction of a bicycle trail along Denning Drive within the City limits of Winter Park are in the public interest, and

WHEREAS, the Department has completed a PD&E study associated with the extension of Lee Road between US 17-92 and Denning Drive that indicates the need for and the viability of said extension of Lee Road

IT IS AGREED BY THE PARTIES TO THIS MEMORANDUM OF UNDERSTANDING:

1. The transportation improvements covered by this memorandum of understanding are as follows: (a.) Extension of Lee Road, and the enhancements to US 17/92 (FM #408429) and (b.) the Bicycle Trail within the limits of right of way of Denning Drive.

2. It is the agreement of the parties that the extension of Lee Road shall be funded and completed prior to or at the same time as the construction of the enhancements on US 17/92. The bicycle facilities will be relocated from US 17/92 to Denning Drive by Winter Park prior to the construction of the US 17/92 enhancements. Unless and until the Lee Road extension project is completed, the Department shall have no obligation to fund the enhancements on US 17/92. Alternatively, if both projects can be and are funded together, the Department may elect to proceed with the construction of both projects at or about the same time.

3. The parties agree that the Department's request for FHWA funding for the enhancements along US 17/92 shall be conditioned on the Lee Road extension project being funded for design and construction prior to, or at the same time. Winter Park agrees to fully cooperate in establishing the Lee Road extension project as a high priority with the MPO and in the Department's work program.

4. Winter Park shall fund the cost of any sidewalk widths over 6 feet. Winter Park shall also fund all landscaping enhancements associated with the project. Winter Park will also fund the incremental cost associated with the texturing of the center bi-directional turn-lane on US 17/92. Winter Park and the Department will agree to the funding responsibilities of street lighting during the final design aspects of the study. The Department will be responsible for funding the remaining aspects of the project.

5. The parties agree and understand that the purpose of this memorandum is to establish the expectations of each with respect to the prioritization, funding and construction of these three related projects and that the enhancement of US 17/92 is dependent on the Lee Road extension and the construction of the bicycle trail along Denning Drive. All intentions relative to funding herein are dependent on the placement of funding into the Department's work program and on appropriation and funding of the work program each year by the legislature.

6. This Memorandum of Understanding shall be effective upon the last party to sign and shall remain in effect until the funds have been fully expended by the Department for the purposes set forth hereinabove.

STATE OF FLORIDA, DEPARMENT OF TRANSPORTATION

William G. Walsh

By: William G. Walsh

Title: Project Manager

Date: 6/2/04

THE CITY OF WINTER PARK, A MUNICIPALITY INCORPORATED UNDER THE LAWS OF THE STATE OF FLORIDA

By: Kenneth R. Marchman

Title: MAYOR

Date: 5-24-04

Resolution #:

Date of Resolution:

Attest: Cynthia S. Bonham

By: Cynthia S. Bonham

Title: City Clerk

Orlando Ave. Transportation Urban Design Plan

GATEWAY CORRIDORS

Orlando Avenue Transportation Urban Design Plan

City of Winter Park, Florida

Glatting Jackson Kercher Anglin Lopez Rinehart, Inc.

City Commission Presentation
August 12, 2002

Study

Overview

Florida Department of Transportation
PROJECT DEVELOPMENT & ENVIRONMENTAL (PD&E) STUDY

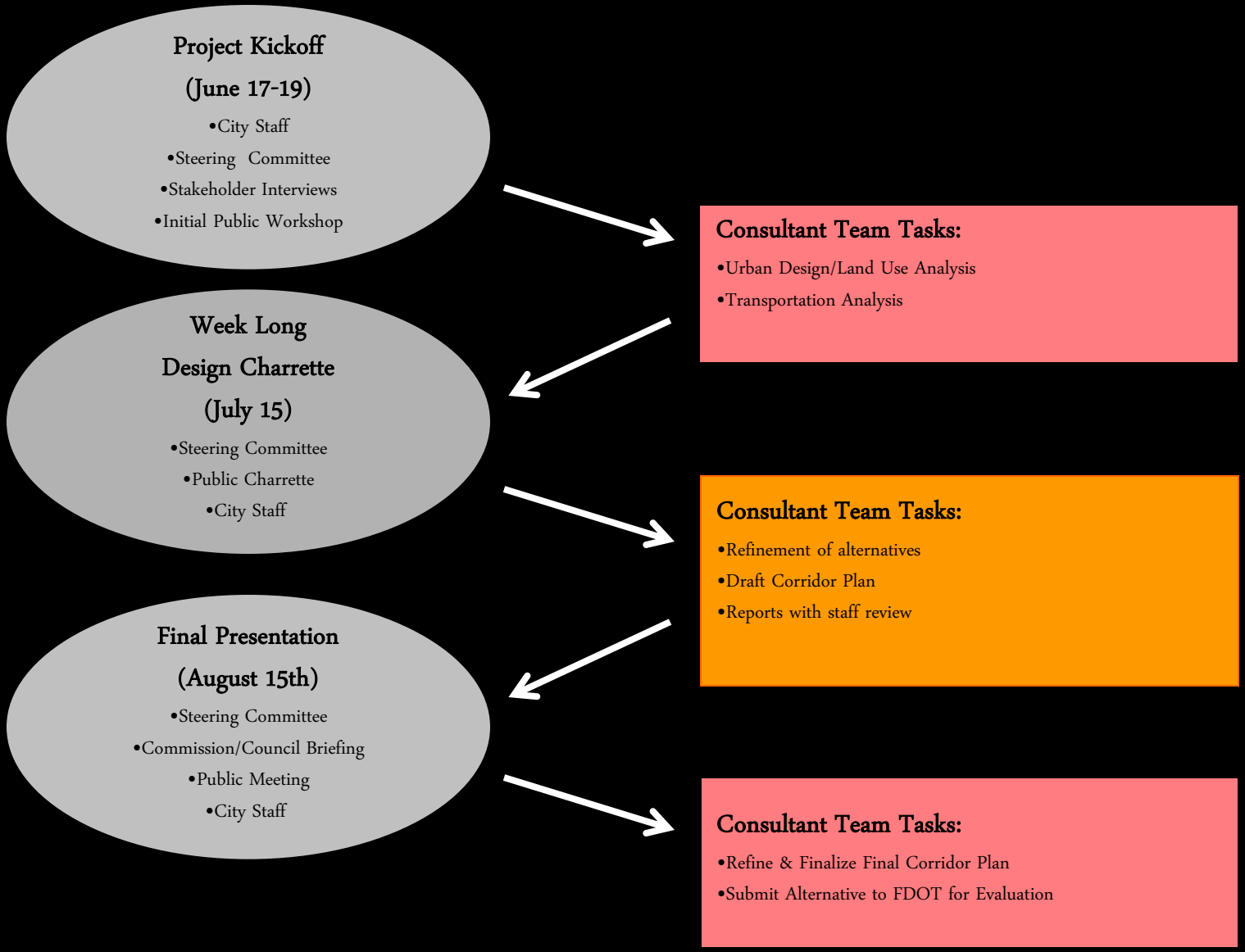
Project Objectives

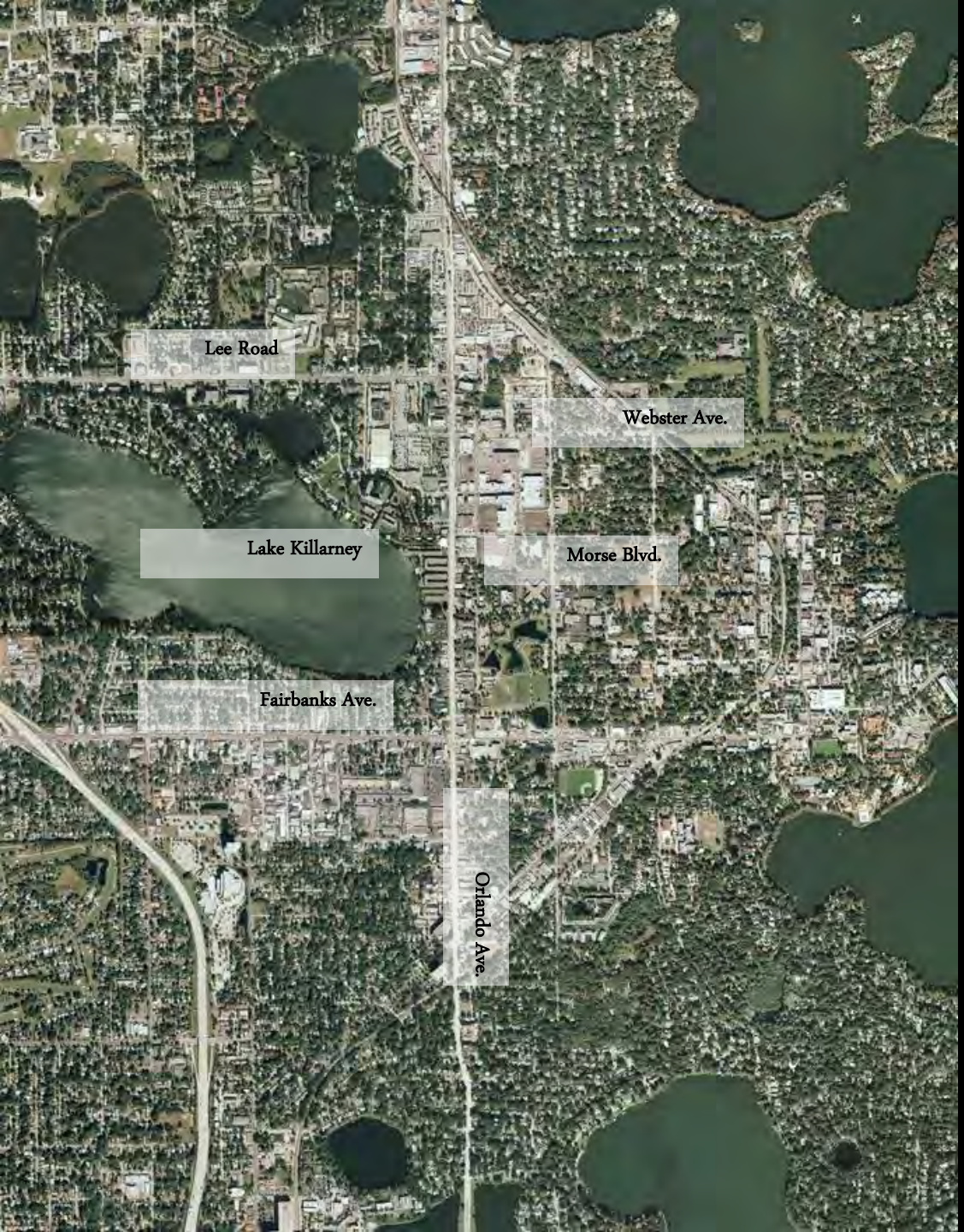
- Minimize traffic congestion
- Improve the safety of the corridor
- Improve the walking, bicycling, and vehicular movements in the corridor
- Manage access in the corridor
- Document social, economic, and environmental impacts associated with transportation improvements in the corridor
- Maintain federal funding eligibility

Project Schedule (16 – 18 months)

- Notice to proceed: November 2001
- Project Completion: April 2003
- Public Workshop #1 April 23rd (Project Introduction)
- Access management meetings (throughout the Fall)
- Public Workshop #2 Fall(Nov/Dec.) 2002 (Alternatives & Analysis)
- Public Hearing Winter/Spring 2003

Project Schedule





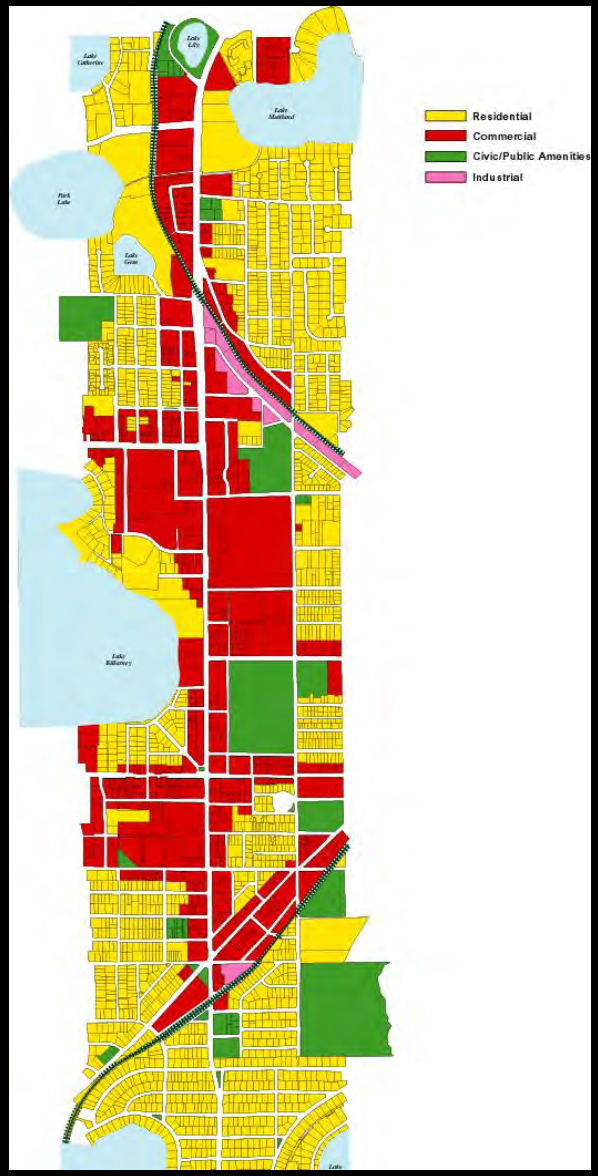
MATURE URBAN FORM

Land Use

- Change will Come through infill redevelopment

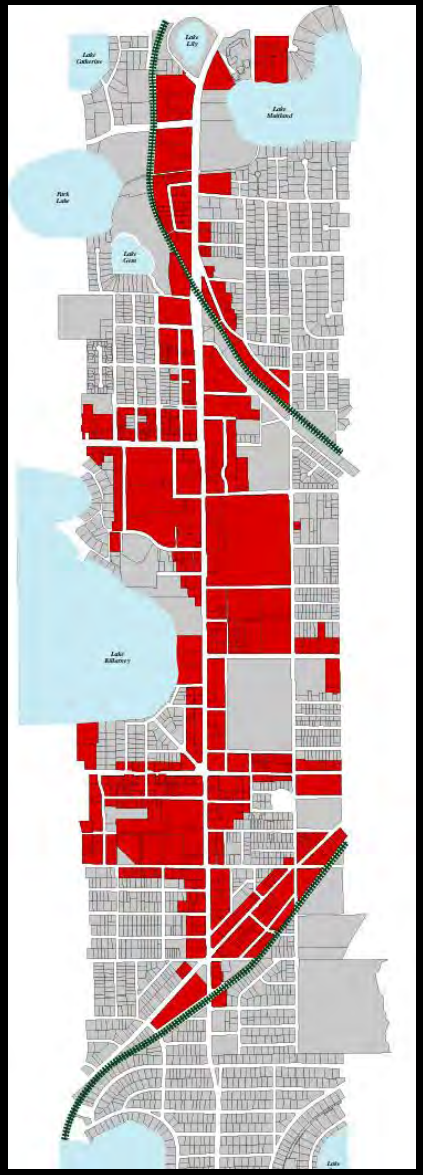
Transportation

- Mobility Enhancements will come through alternative mode of travel



Land Use

Transportation

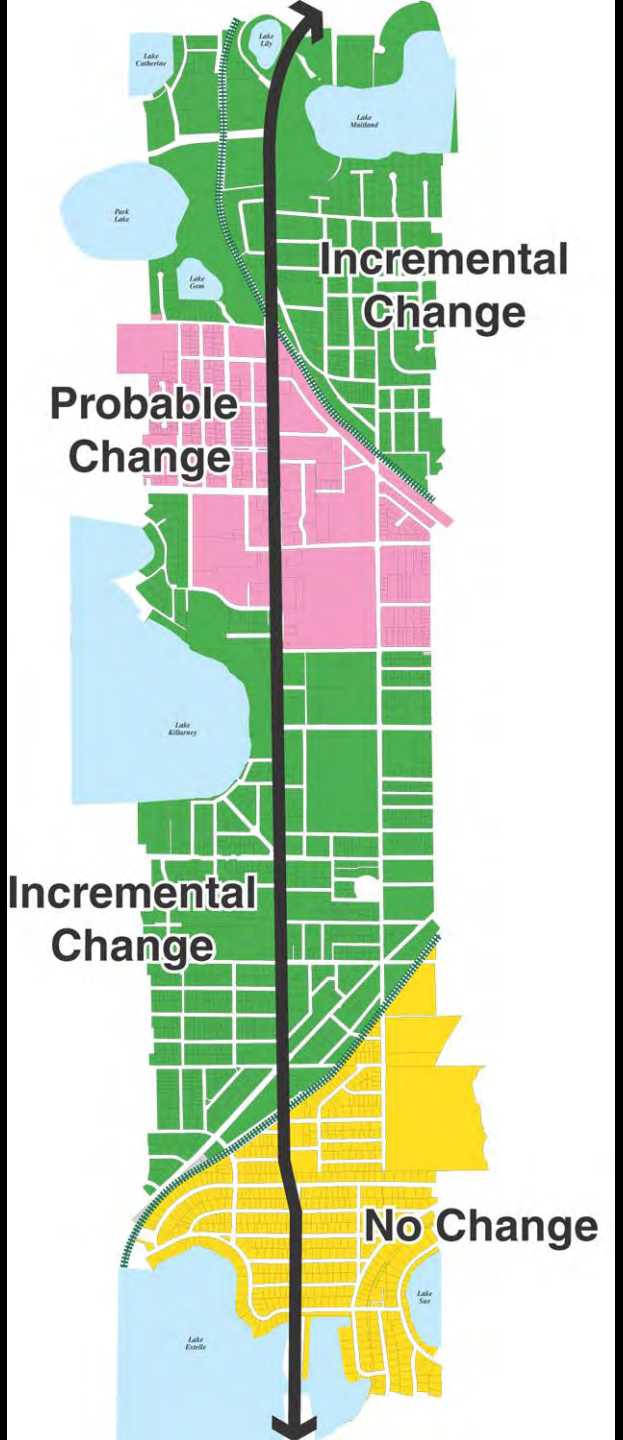


Commercial

Residential

Parks

Parcel Size



No Change

- Established Neighborhood, No Commercial Activity

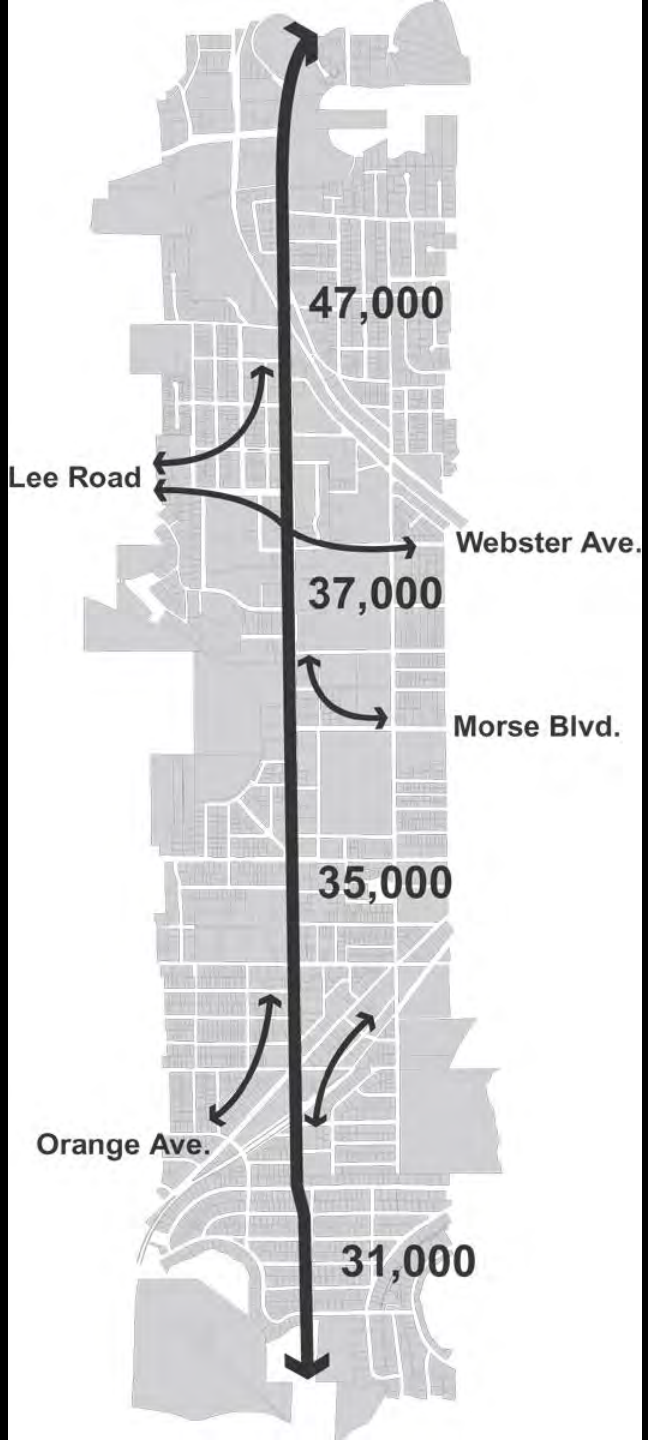
Incremental Change

- Established Neighborhoods, Small Parcels, Establish Land Use

Probable Change

- Large Parcels, High Land Value, Transitional Uses

Traffic Volumes



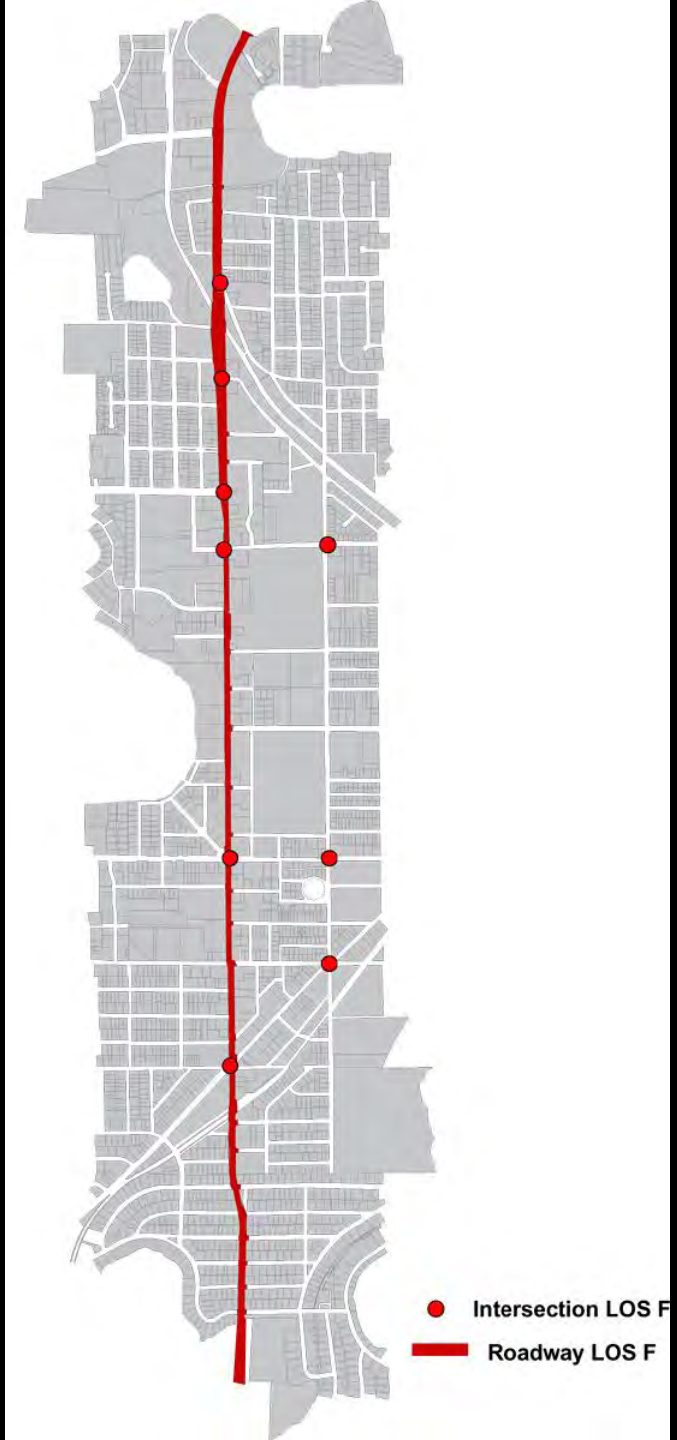
North-South and East-West trips share roadway


Lee Road
Orlando Ave.
Opposing lefts too close
Webster Avenue

Existing Traffic

(FDOT Analysis)

- Intersections
  - Orlando/Webster
  - Orlando/Fairbanks
  - Fairbanks/Denning
- Roadway segments
  - Morse Blvd. to Lee Rd.



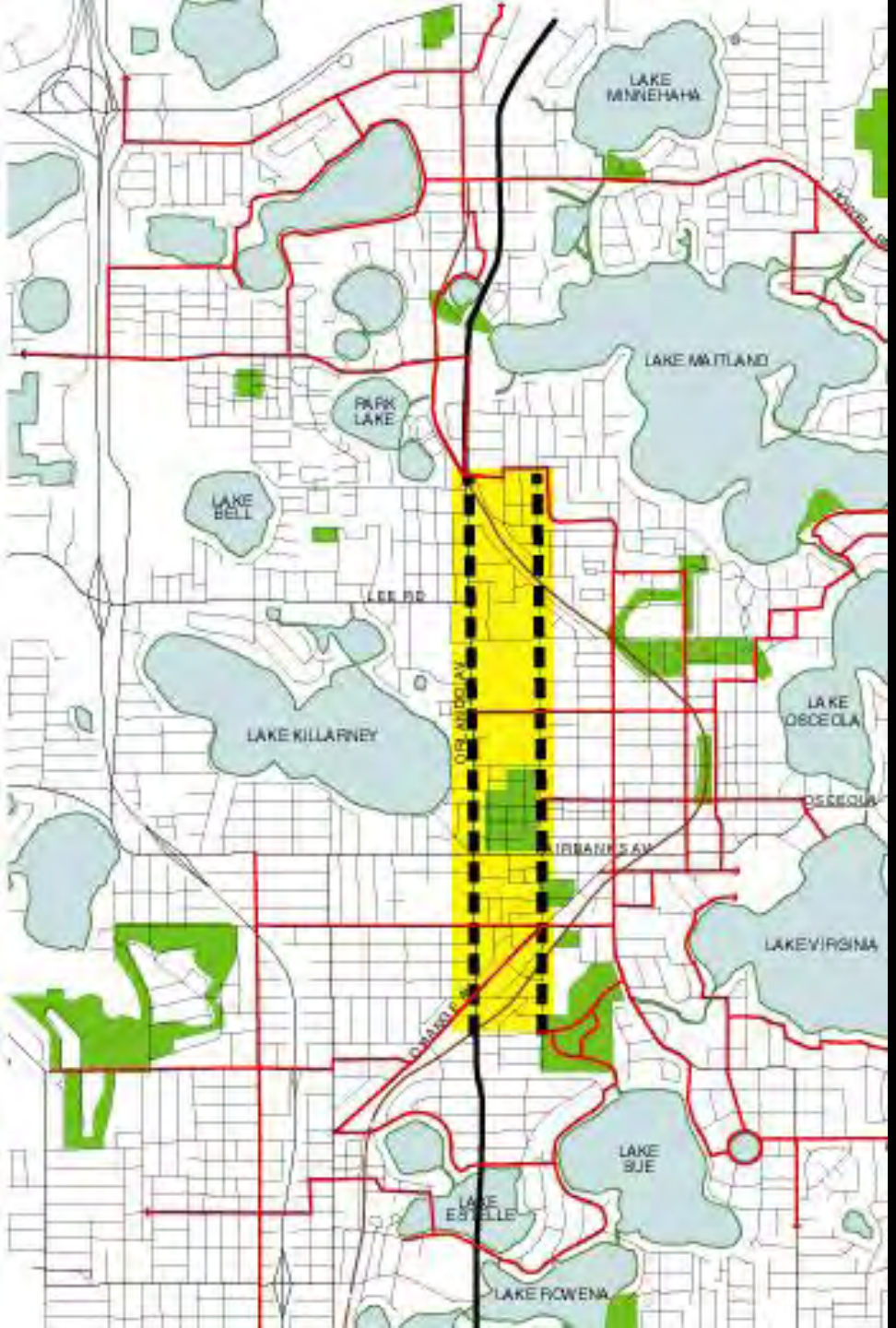
Future Traffic

(FDOT Analysis)

- Intersections
  - Orlando/Park
  - Orlando/Solana
  - Orlando/Lee
  - Orlando/Webster
  - Orlando/Fairbanks
  - Orlando/Minnesota
  - Denning/Webster
  - Denning/Fairbanks
  - Denning/Orange
- Roadway segments
  - Corridor

- Too few signals for pedestrians to cross
  (Ideal signal spacing = 600-800 ft.)

- Continuous green signals do not allow pedestrian movement
  - Northbound at Lee Road
  - Southbound at Park Avenue

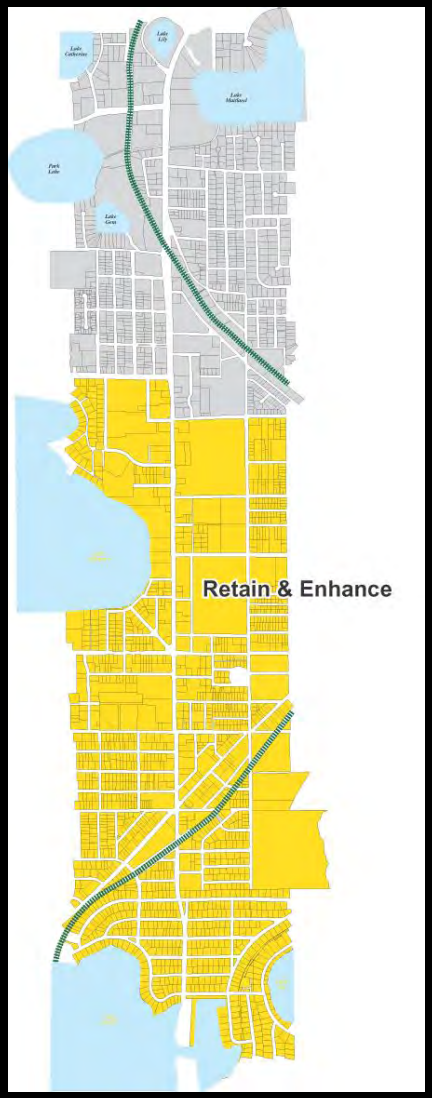


- No north-south bike connection available in western Winter Park
- Options
  - Orlando Avenue
  - Denning Drive
  - Others?

Proposed bicycle routes

- Retain and enhance business climate
- Create a safe pedestrian/bicycle environment
- Balance mobility and accessibility
- Match Capacity Improvements to Redevelopment Opportunities
- Widening is not an option

North of Canton Avenue

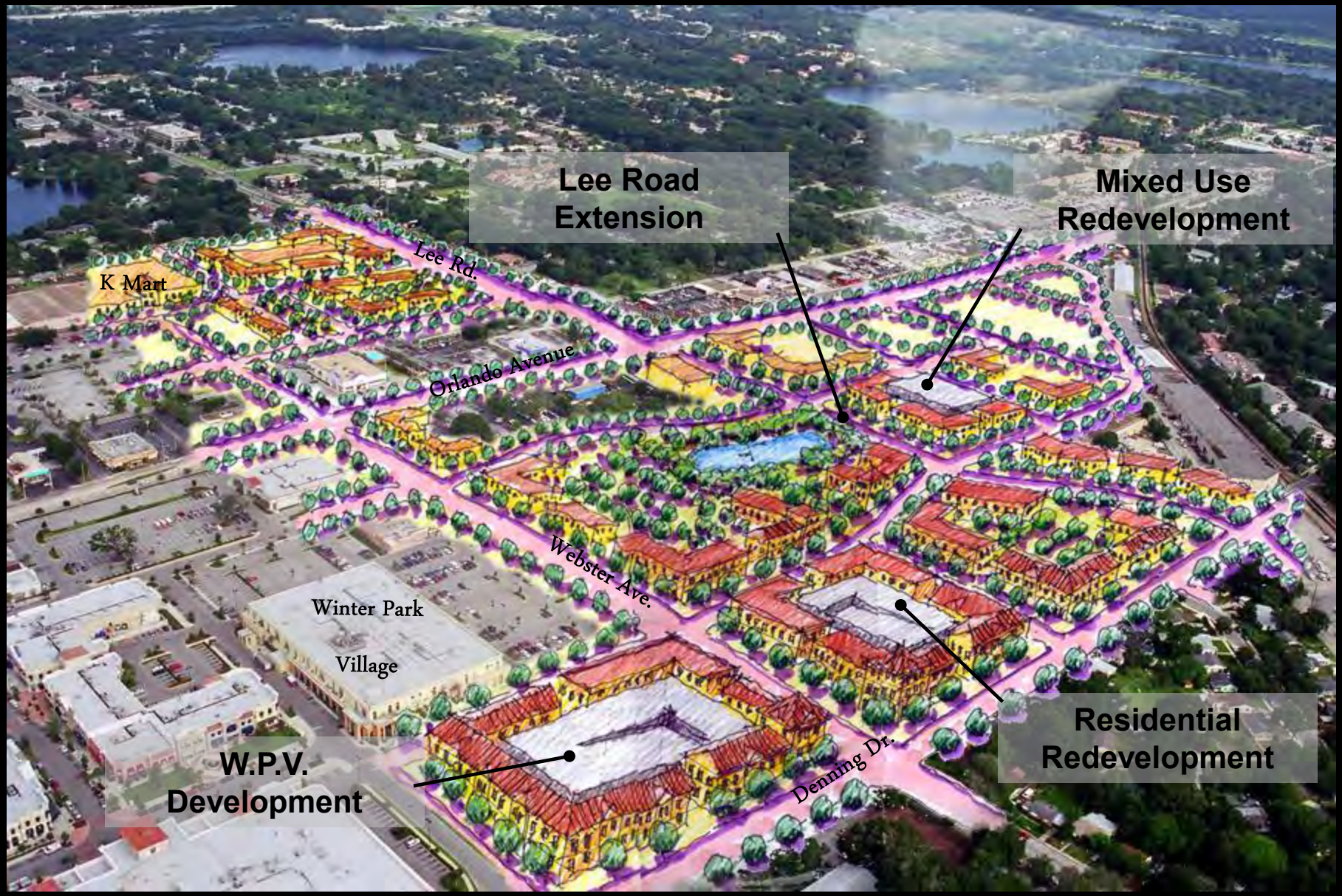


South of Canton Avenue

North of Canton Avenue


K Mart
Lee Rd.
Orlando Avenue
Solana Ave.
Winter Park
Vo Tech
Webster Ave.
Winter Park
Village
Denning Dr.


K Mart
Lee Rd.
Orlando Avenue
Solana Ave.
Webster Ave.
Winter Park
Village
Denning Dr.


Lee Road Extension
Mixed Use Redevelopment
Lee Rd.
K Mart
Orlando Avenue
Webster Ave.
Winter Park
Village
W.P.V. Development
Denning Dr.
Residential Redevelopment

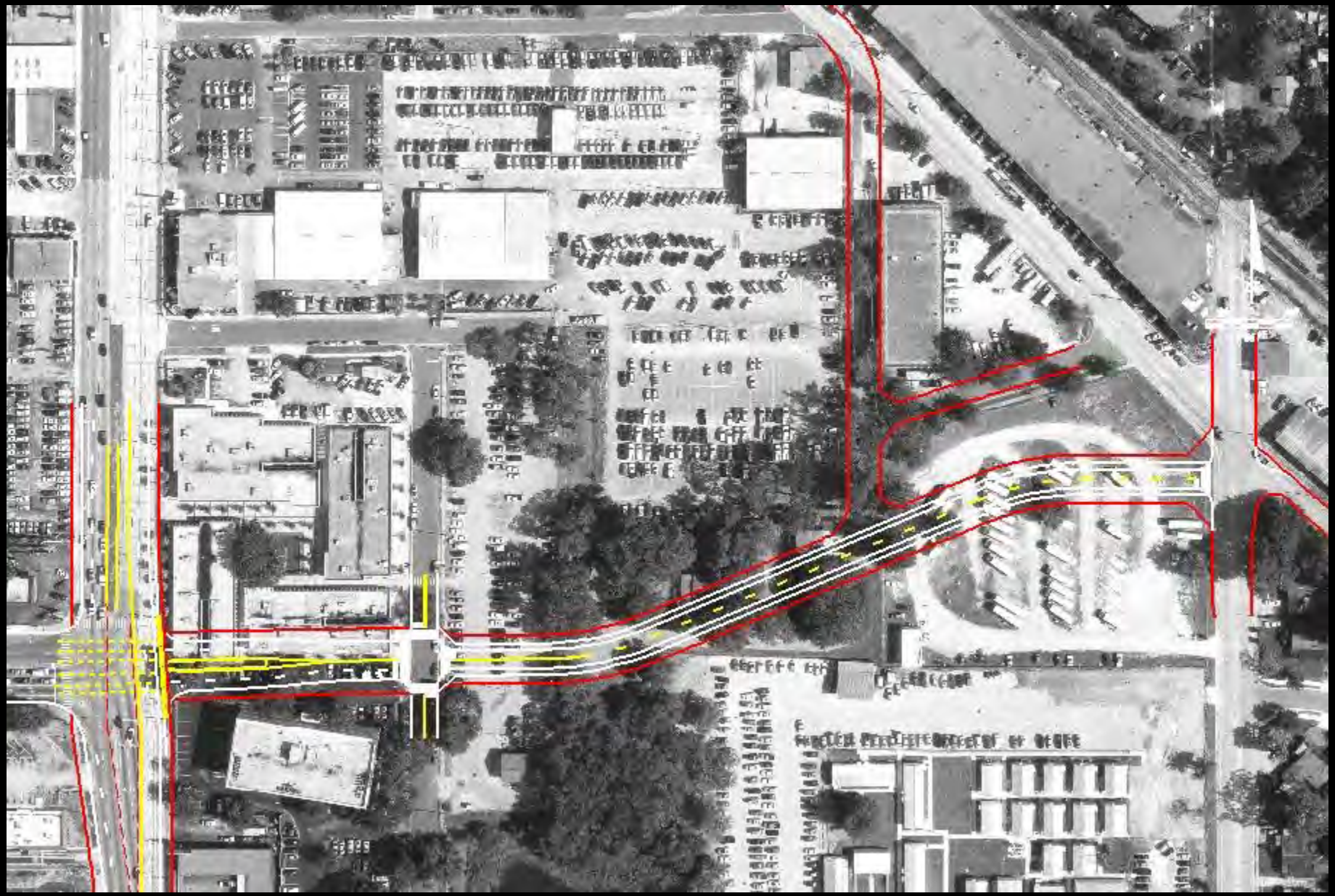
Existing Conditions

Project Recommendations

Legend

- New Signals
- FDOT Improvements
- City/Redevelopment Improvements

Lee Road Extension

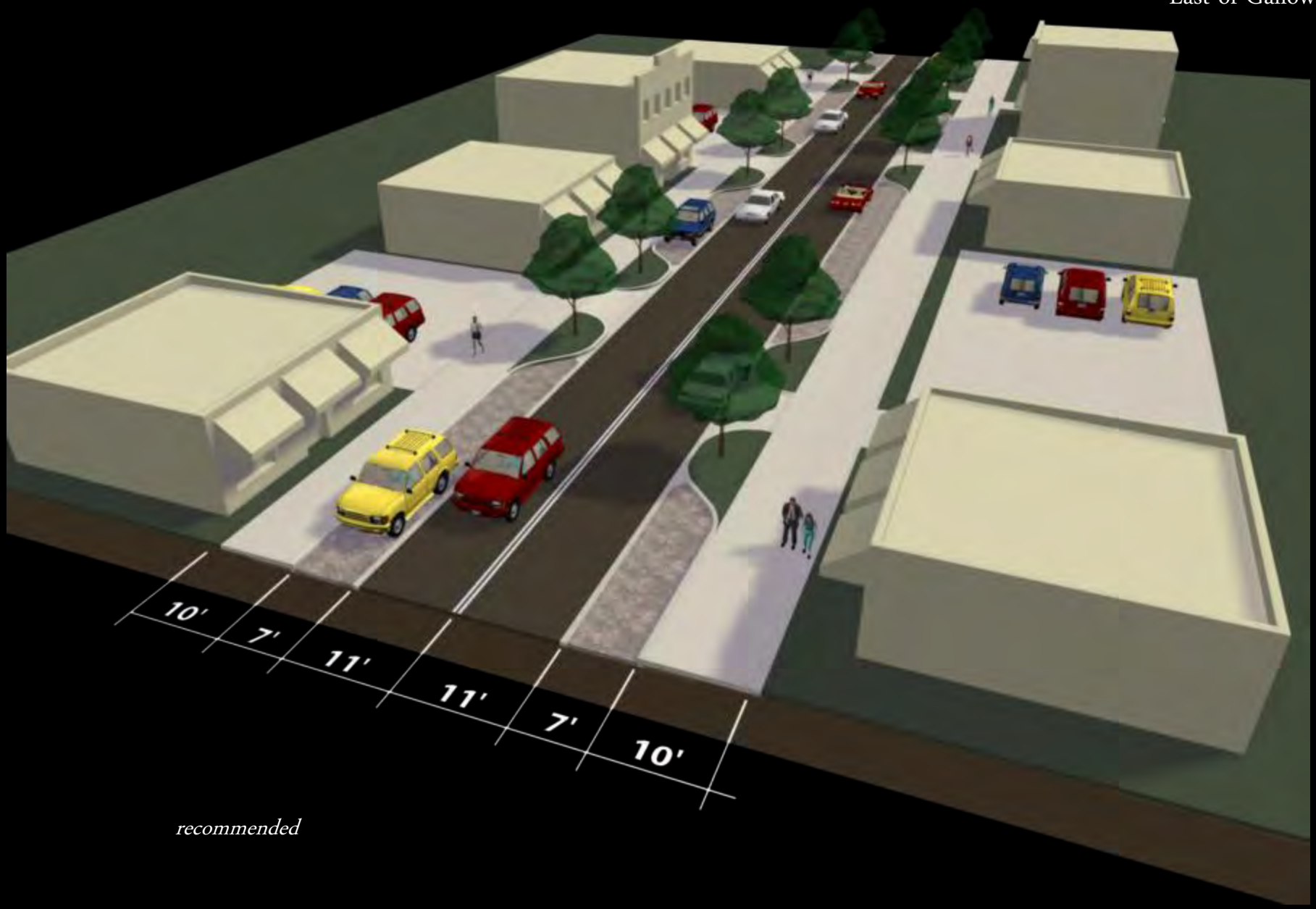


ACTIONS

- Extend Lee Road
- New Signal at Solana and Orlando Ave.
- New Signal at Executive Dr. and Lee Road
- Realign Solana Ave.
- Remove Median Between Gay Road & Webster Ave.
- Extend Webster to Executive Drive
- Create Grid of Streets with Redevelopment
- Resize (Reduce) Webster Ave.
- Resize (Reduce) Denning Drive

Lee Road

East of Galloway



recommended

Orlando Avenue

North of Lee Road

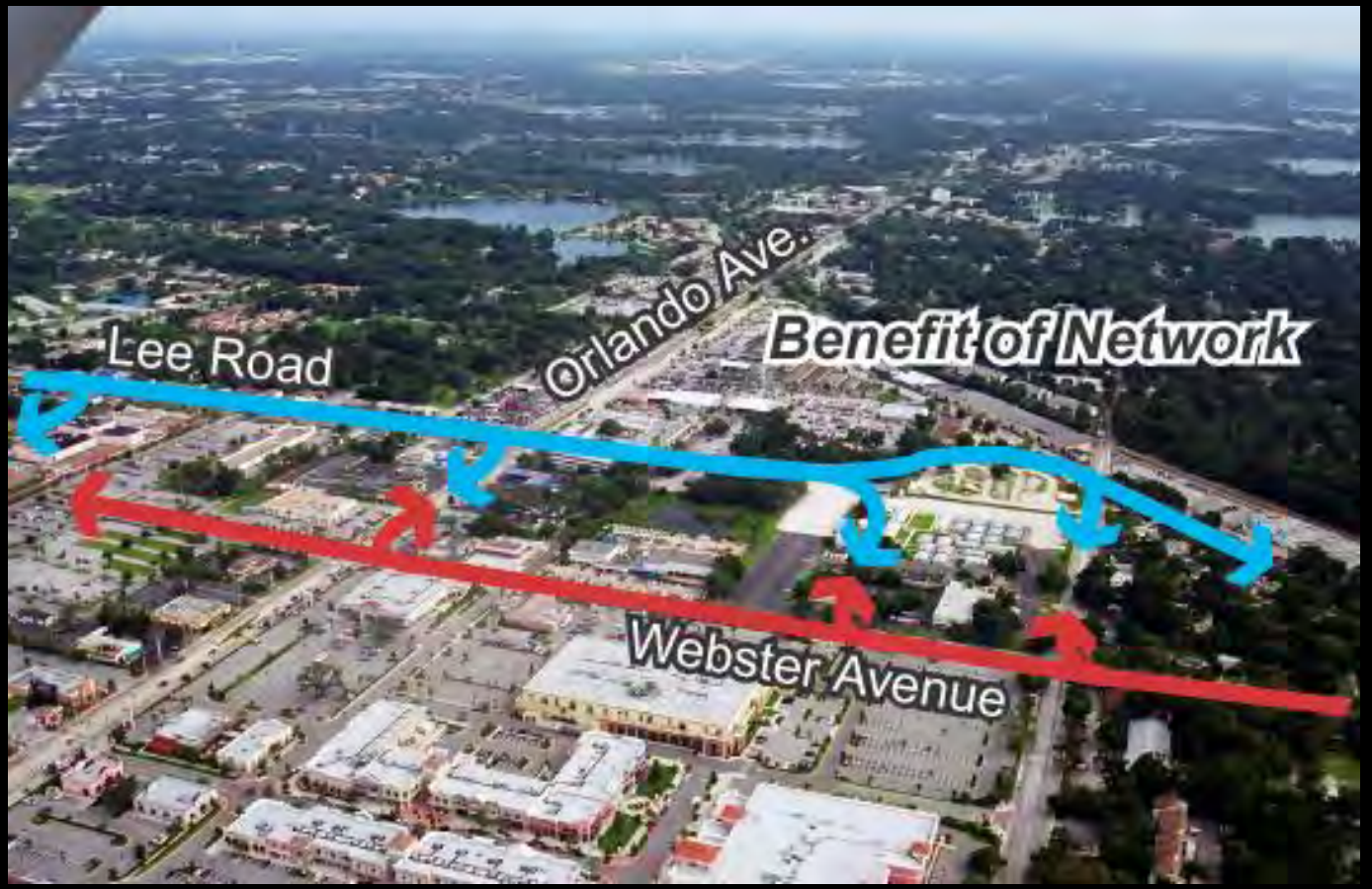
current conditions

Orlando Avenue

North of Lee Road

recommended

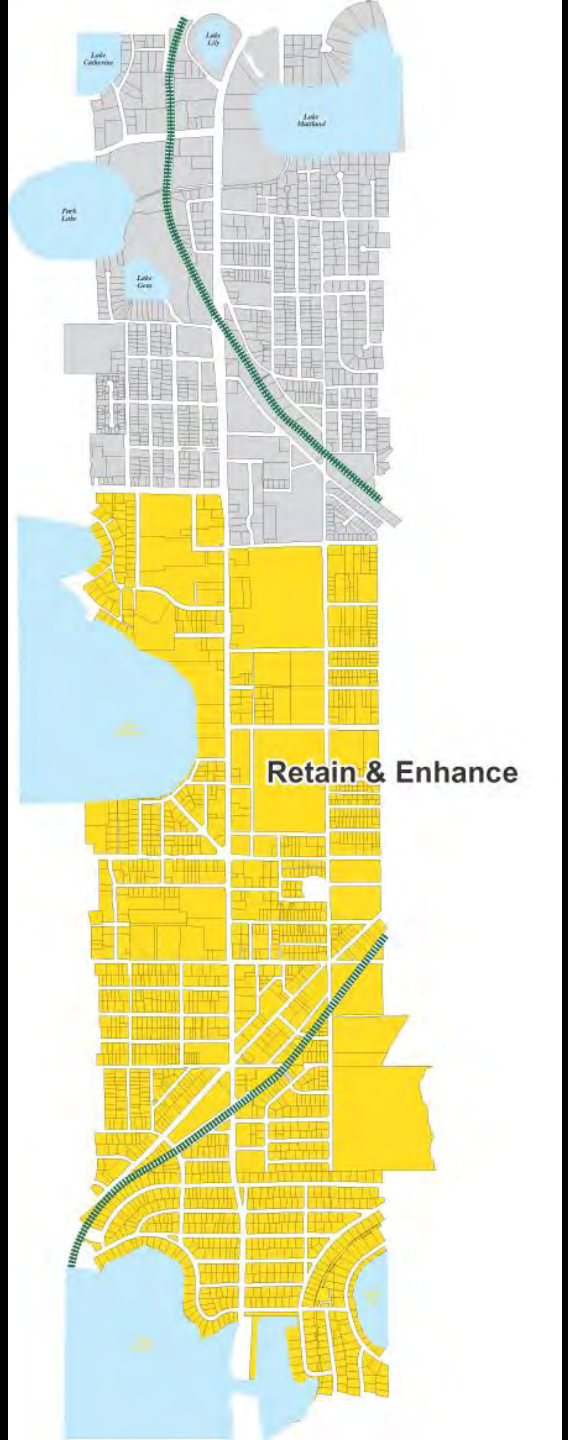

Lee Road
Orlando Ave.
North-South Trips
East-West Trips
Webster Avenue

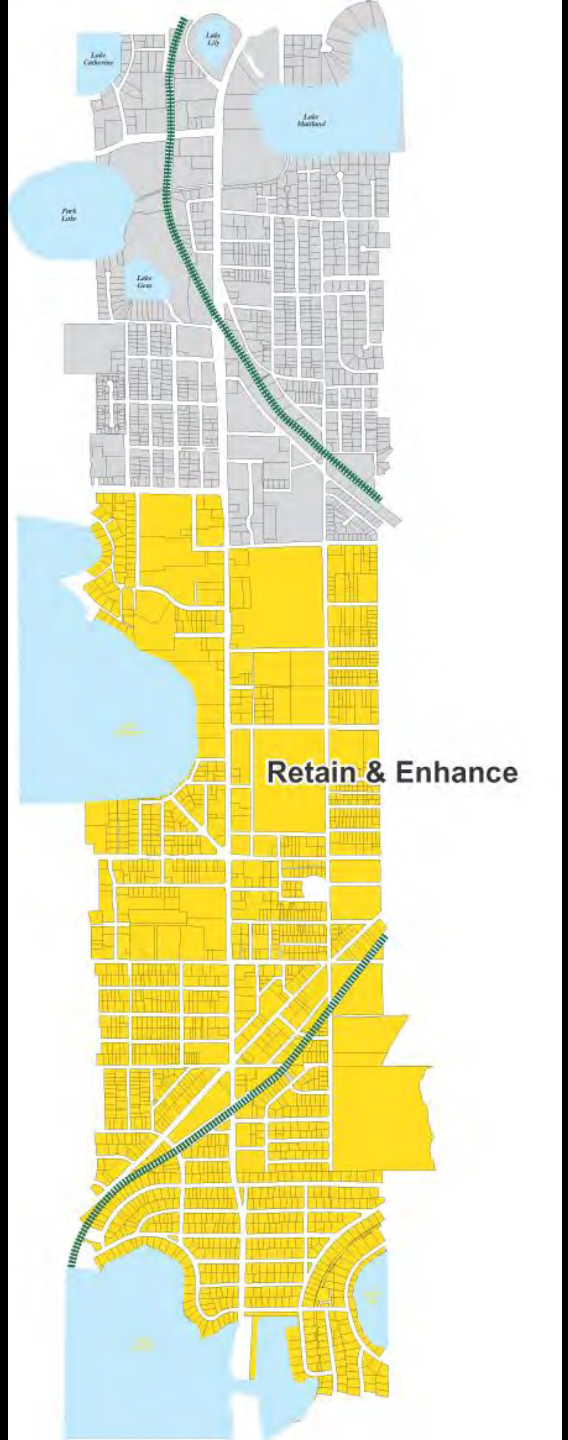

Lee Road
Orlando Ave.
Benefit of Network
Webster Avenue


Lee Road
Orlando Ave.
Opposing lefts too close
Webster Avenue


Lee Road
Orlando Ave.
Benefit of Network
Webster Avenue

South of Canton



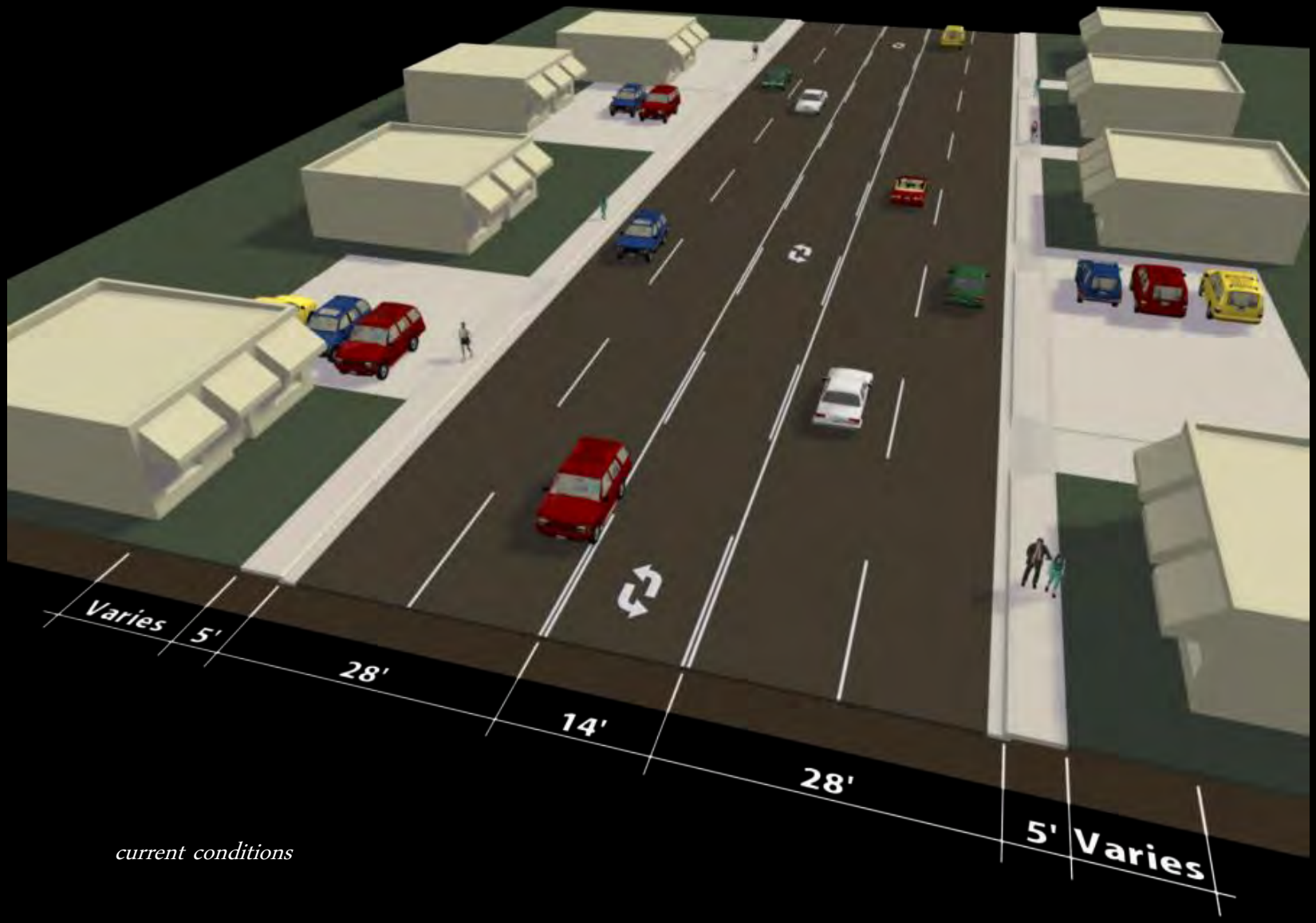


ACTIONS

- Pedestrian Improvements
- Driveway Consolidation
- Intersection Modifications
- Cross Access Easements

Orlando Avenue

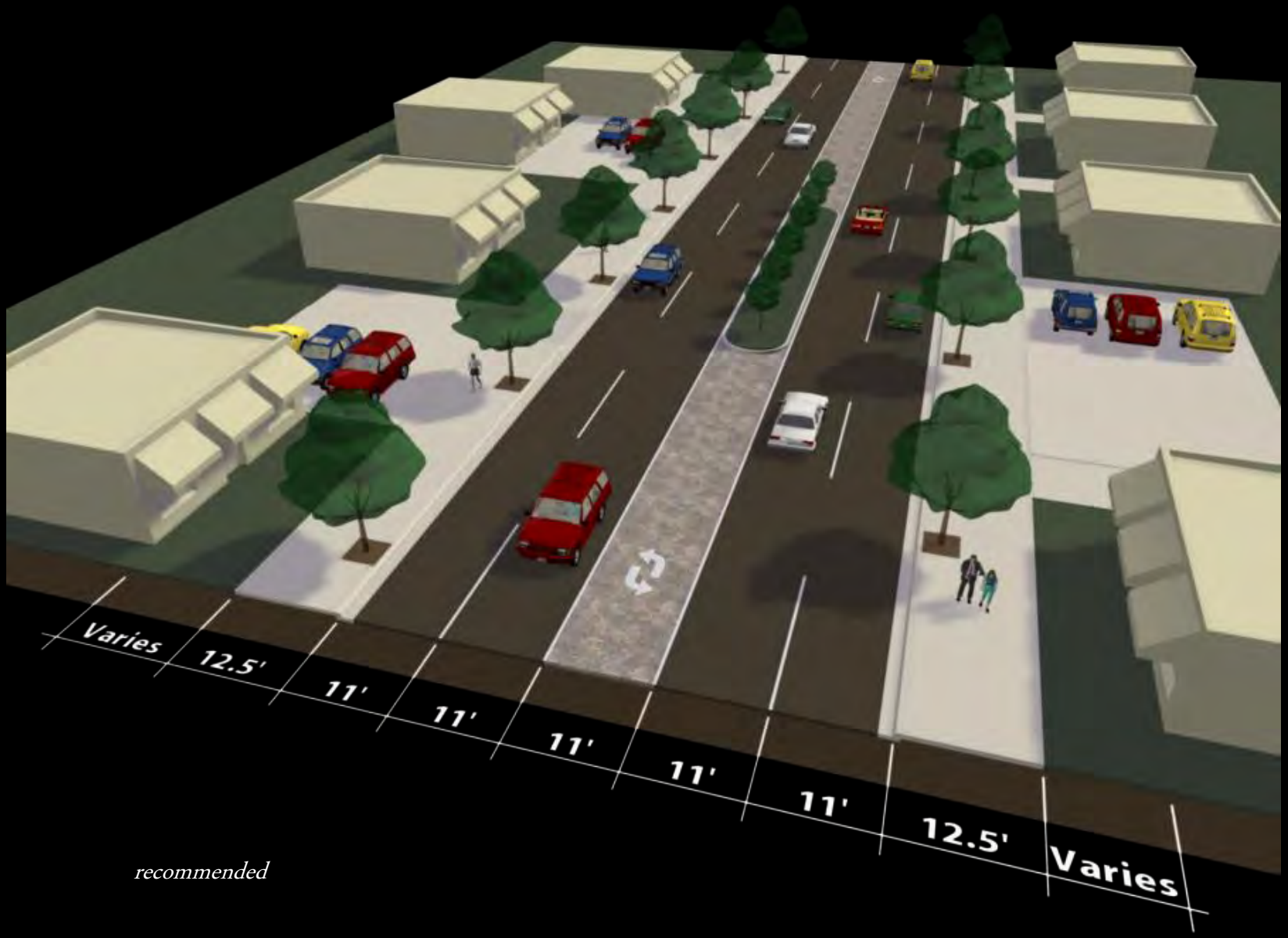
South of Lee Road



current conditions

Orlando Avenue

South of Lee Road



recommended


ONE
WAY
ONE
WAY

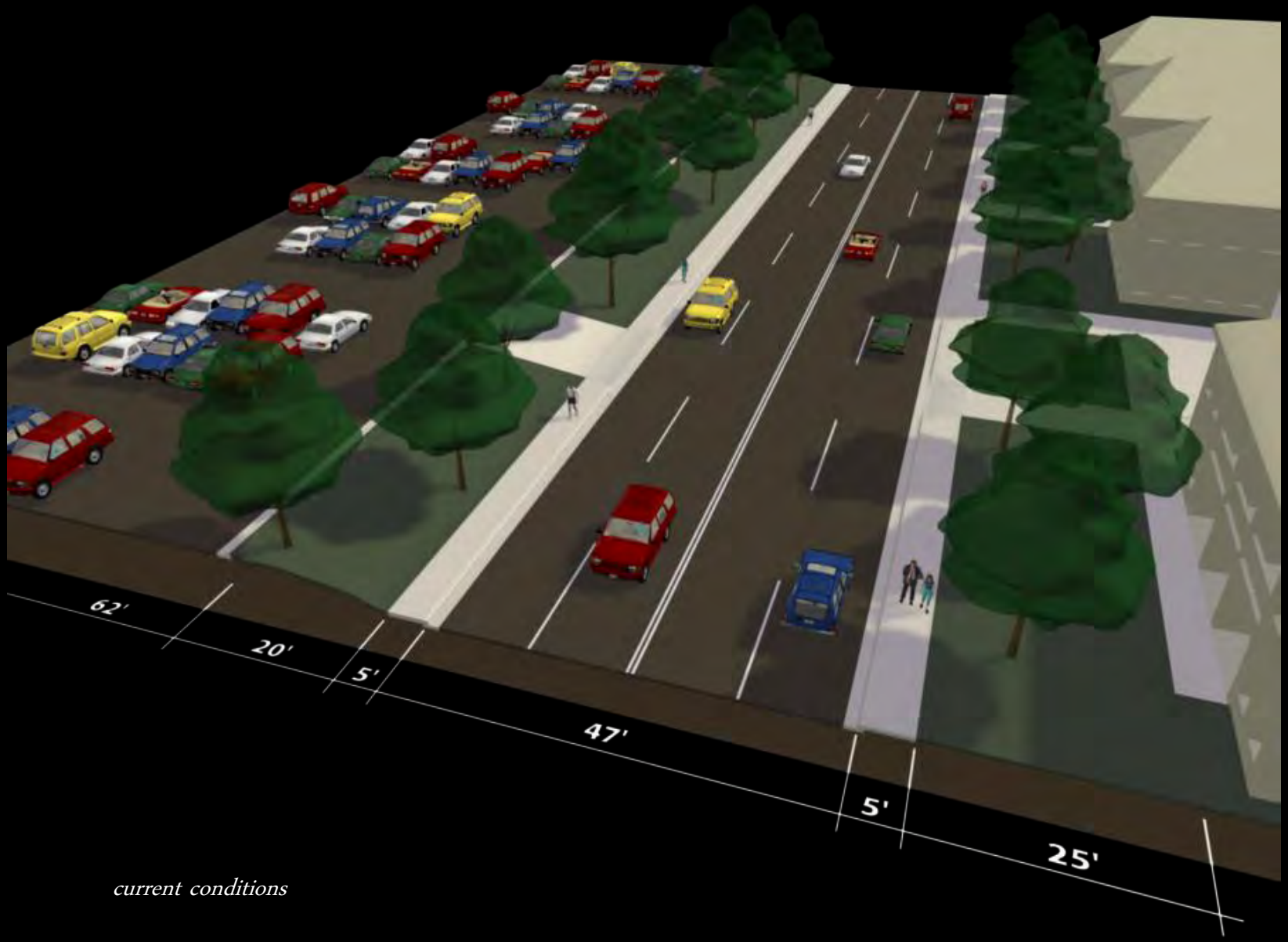

ONE
WAY
ONE
WAY


ONE
WAY

Pedestrian Improvements

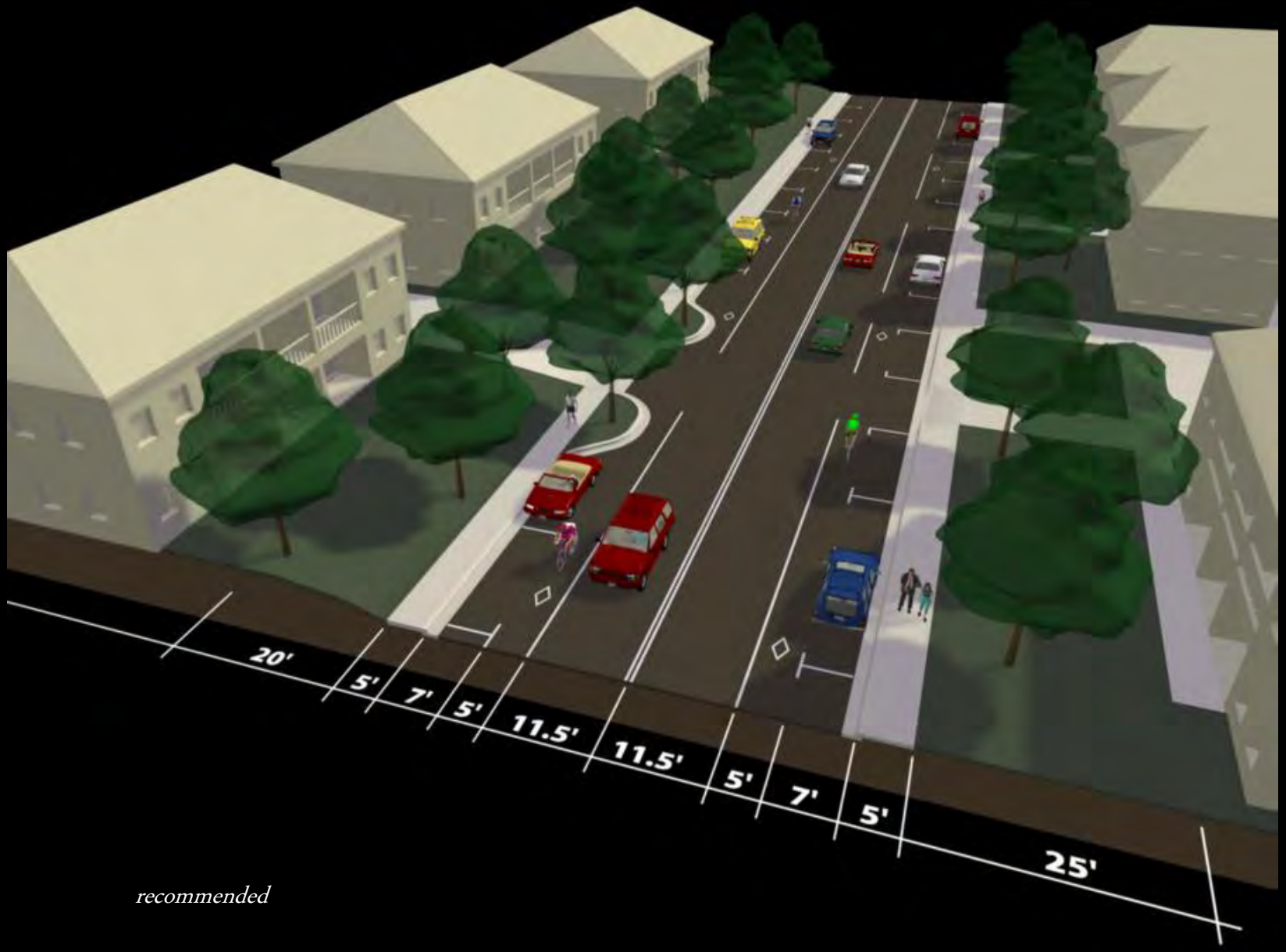
Bicycle Improvements

Denning Drive



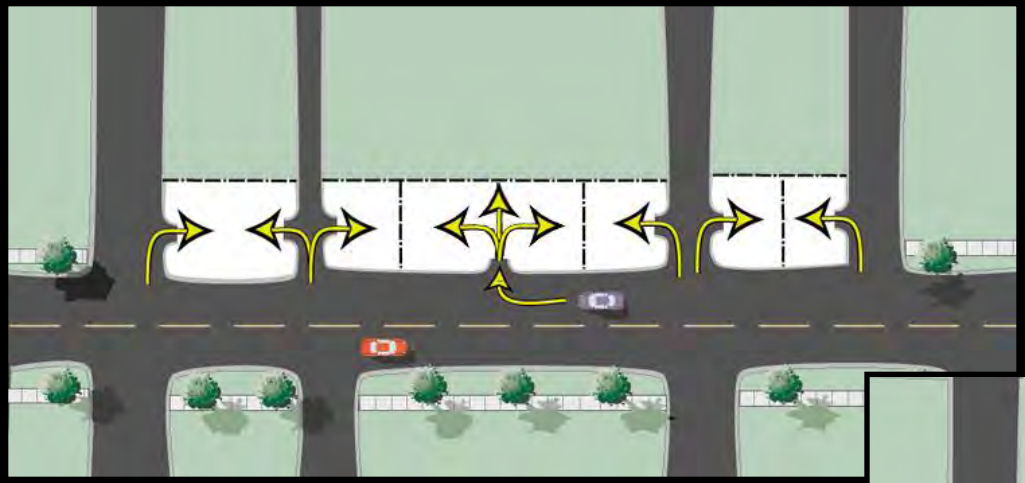
current conditions

Denning Drive

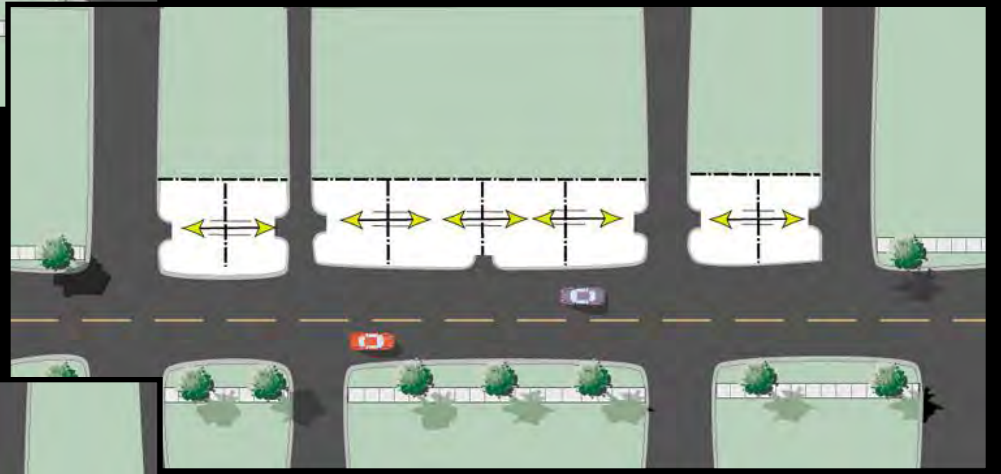


recommended

Access Management Tools



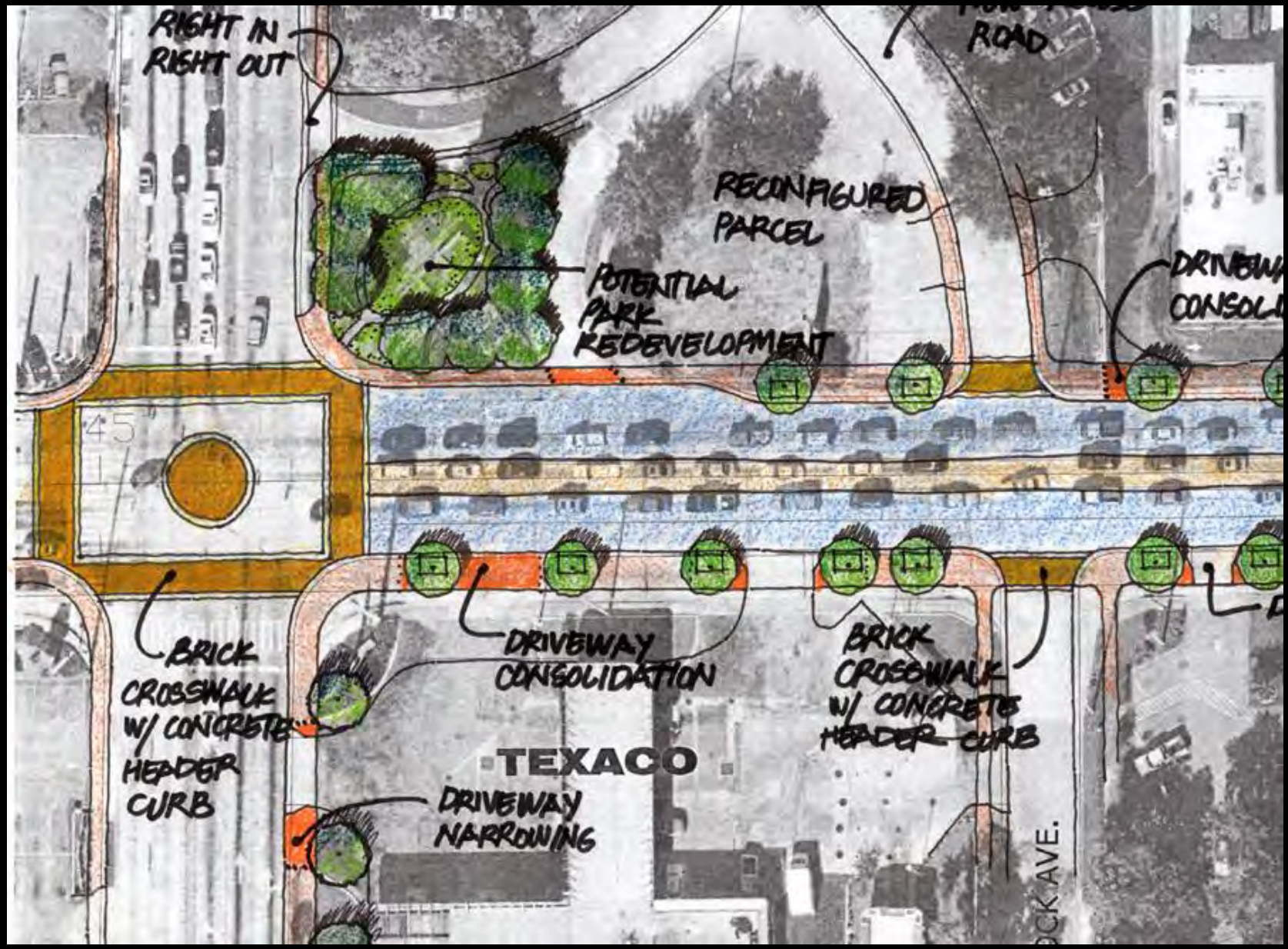
Shared Driveways

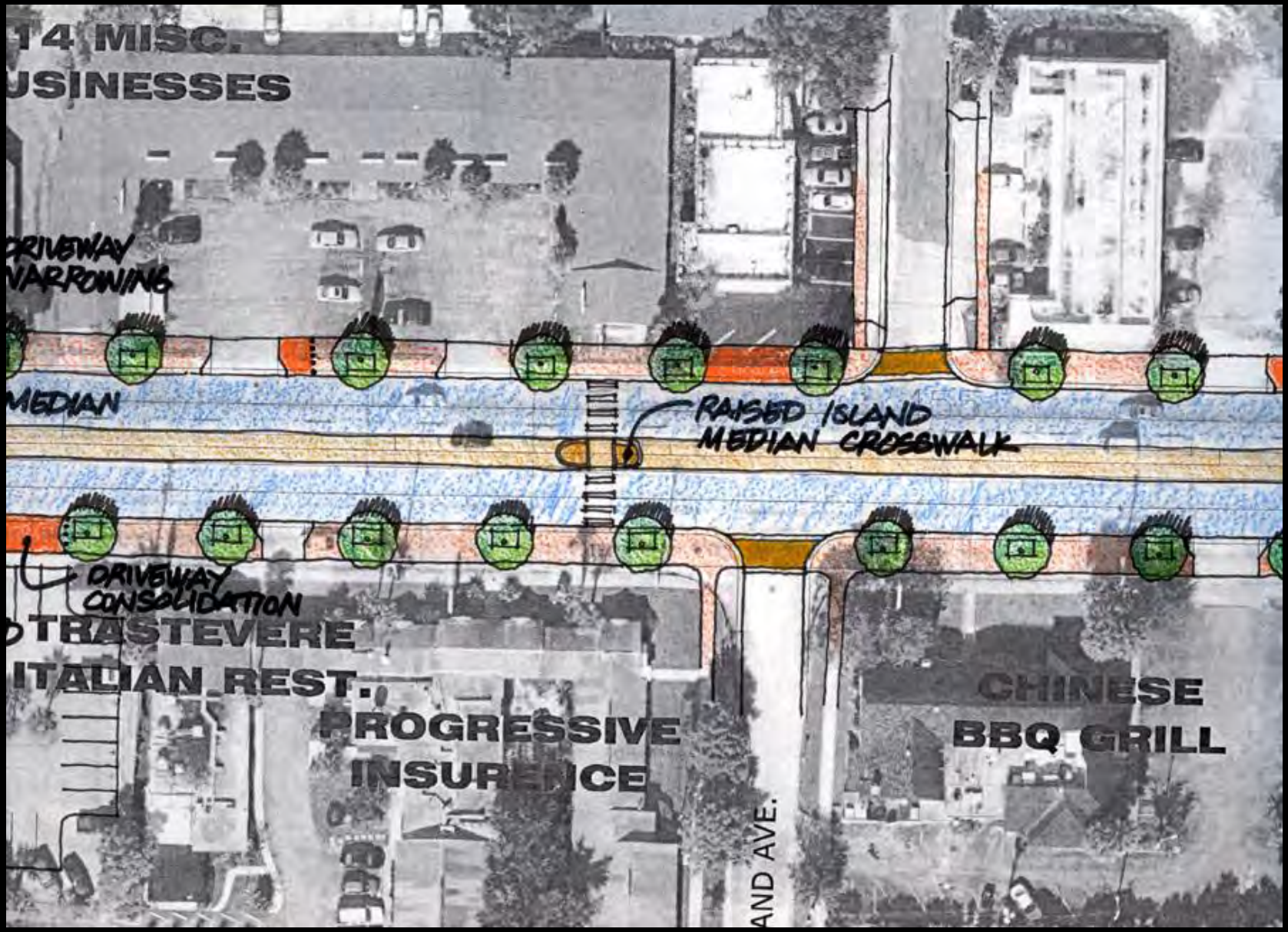


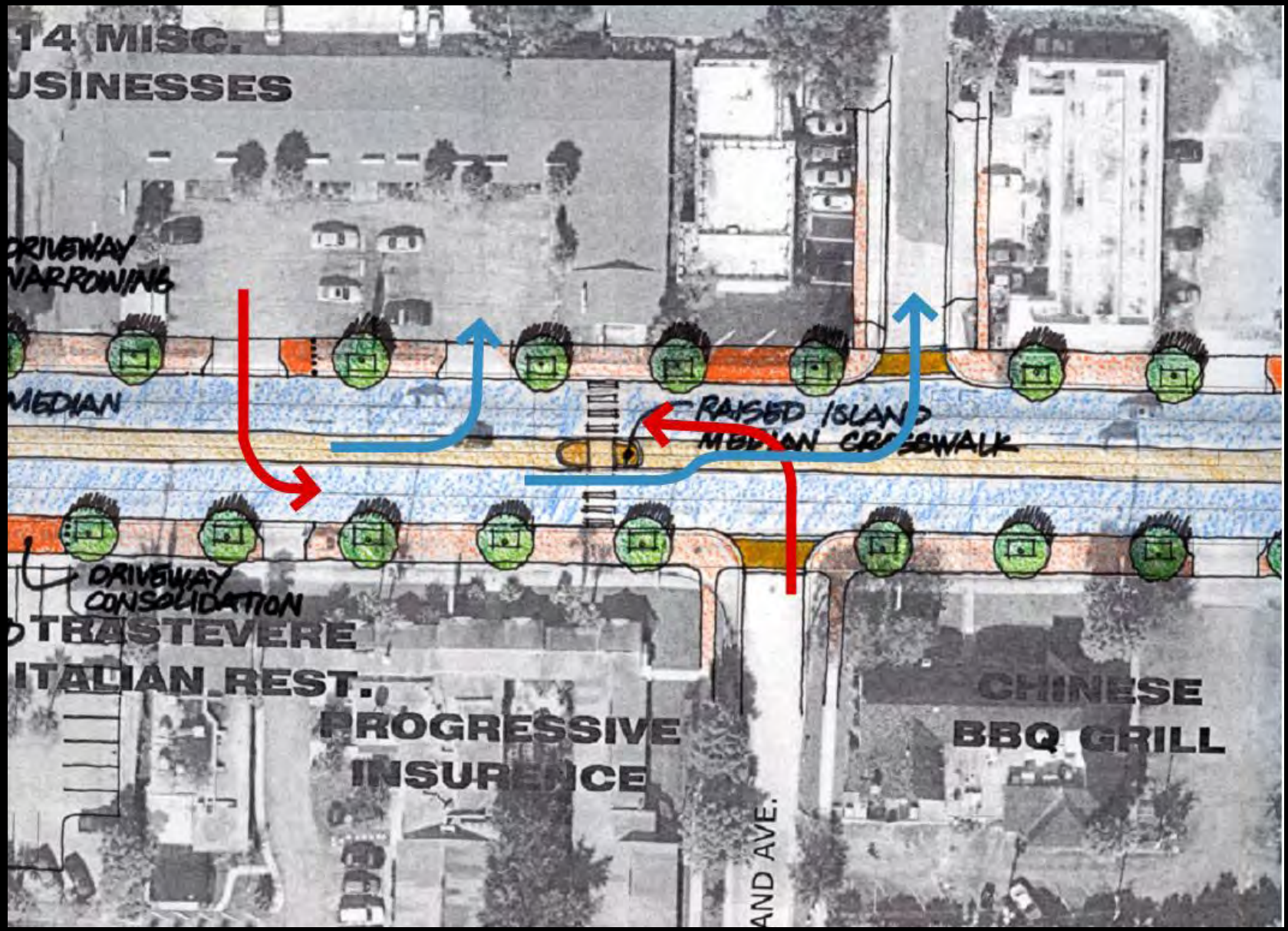
Cross Access Easements

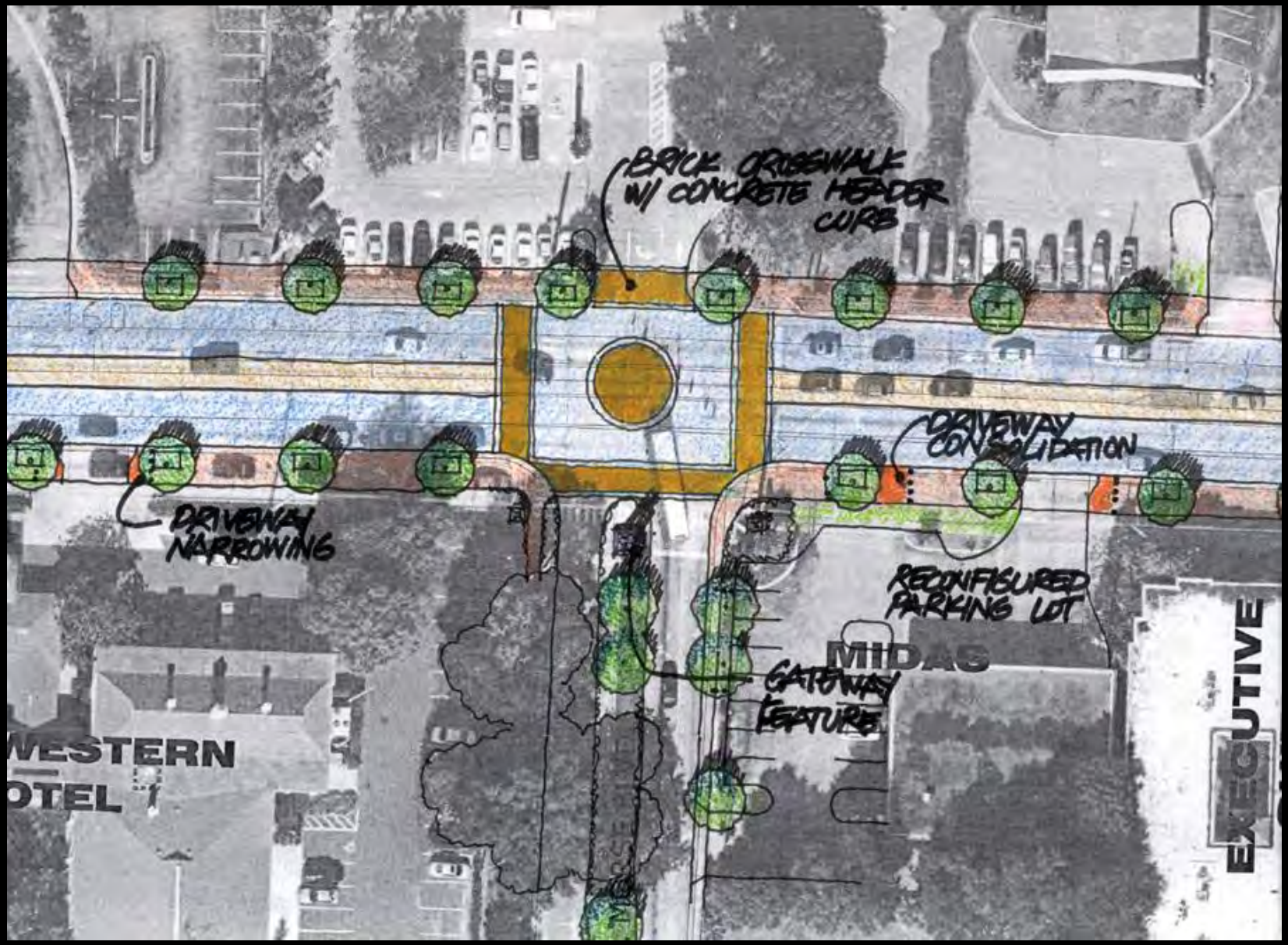
Access Roads

Driveways	Consolidated	Narrowed
97	15	11


RIGHT IN
RIGHT OUT
ROAD
RECONFIGURED
PARCEL
POTENTIAL
PARK
REDEVELOPMENT
DRIVEWAY
CONSOLIDATION
BRICK
CROSSWALK
W/ CONCRETE
HEADER
CURB
DRIVEWAY
CONSOLIDATION
BRICK
CROSSWALK
W/ CONCRETE
HEADER CURB
TEXACO
DRIVEWAY
NARROWING
AVE.


14 MISC.
USINESSES
DRIVEWAY
NARROWING
MEDIAN
RAISED ISLAND
MEDIAN CROSSWALK
DRIVEWAY
CONSOLIDATION
TRASTEVERE
ITALIAN REST.
PROGRESSIVE
INSURANCE
AND AVE.
CHINESE
BBQ GRILL


14 MISC.
USINESSES
DRIVEWAY
NARROWING
MEDIAN
RAISED ISLAND
MEDIAN CROSSWALK
DRIVEWAY
CONSOLIDATION
TRASTEVERE
ITALIAN REST.
PROGRESSIVE
INSURANCE
CHINESE
BBQ GRILL
AND AVE.


BRICK CROSSWALK W/ CONCRETE HEADER CURB
DRIVEWAY CONSOLIDATION
DRIVEWAY NARROWING
RECONFIGURED PARKING LOT
GATEWAY FEATURE
MIDAS
WESTERN
OTEL
EXECUTIVE


AUTO SERVICE EXPERTS
MIDAS


AUTO SERVICE EXPERTS
MIDAS


AUTO SERVICE EXPERTS
100

Intersections Improved

- Orlando/Park
- Orlando/Solana
- Orlando/Lee
- Denning/Webster

Pedestrian & Bicycling Improvements Throughout

Overall Increase in Mobility

Northbound

From 5.3 mph to 5.7 mph

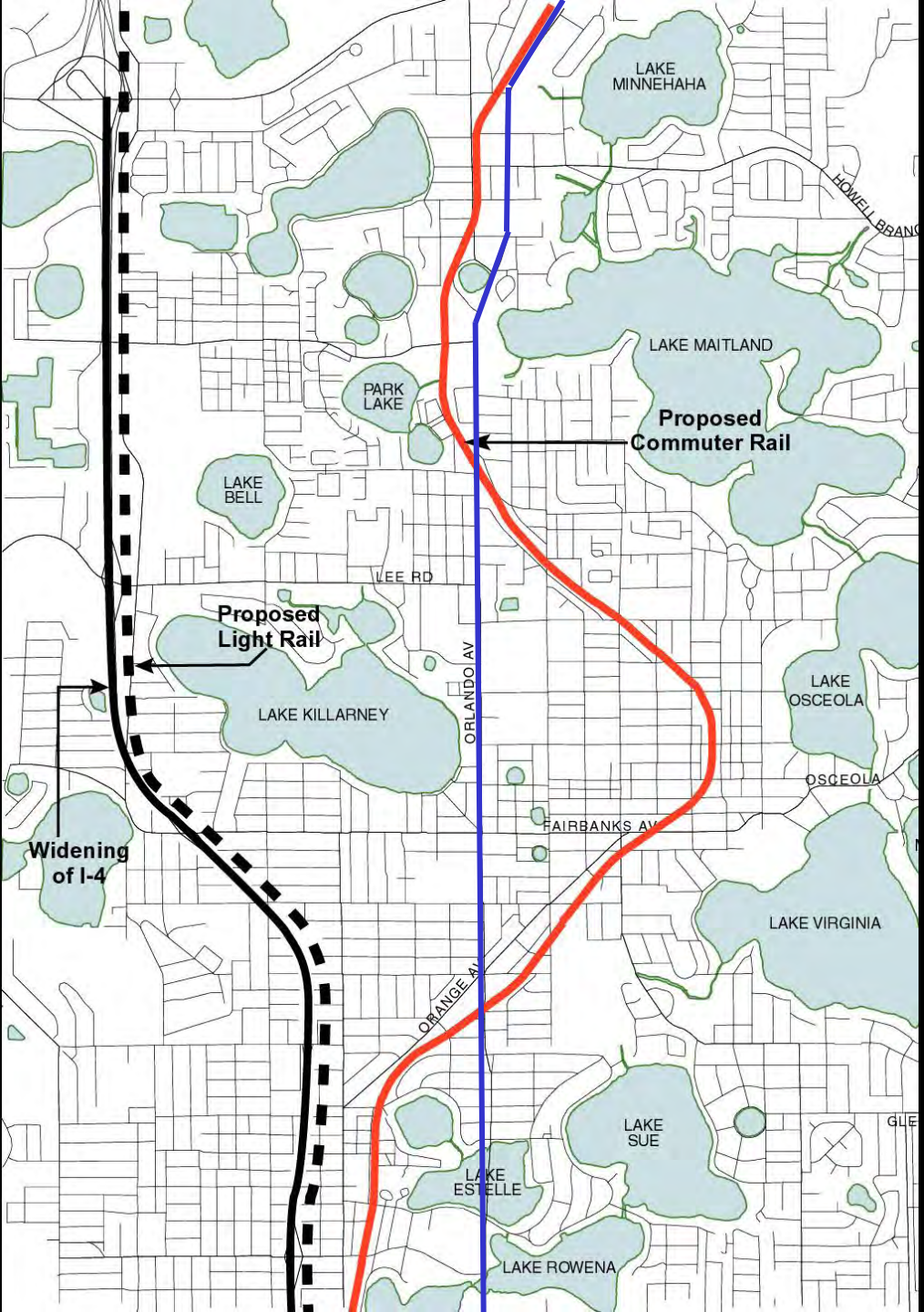
95 seconds saved over the corridor

Southbound

From 8.1 mph to 9.1 mph

98 seconds saved over the corridor

Regional Transportation Improvements



- Widening of I-4
- Light rail
- Commuter rail

1. Present Draft Plan August 15th
2. Request Commission formally present this option to FDOT for evaluation August 27th.
3. Monitor & participate in the FDOT PD&E process

Vision Studies

GATEWAY CORRIDORS

WHITEHALL DRIVE, GREENE DRIVE,& CADY WAY SUMMERFIELD ROAD, AND MIZELL AVENUE

The neighborhood bound by Lakemont, Aloma, and Semoran Blvd. has numerous traffic generators such as Winter Park Hospital, Winter Park High School, Berkshire E.S. and Ward Memorial Park. In addition, the streets in this neighborhood carry a significant number of cut through traffic because of the lack of an East west arterial through the Naval Training Center / Baldwin Park.

Vision

Design / Posted Speed: 25 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: No right-turn lanes in the district.

Median: No median.

On-street parking: No on-street parking.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 40-feet on center (City initiated & maintained planting).

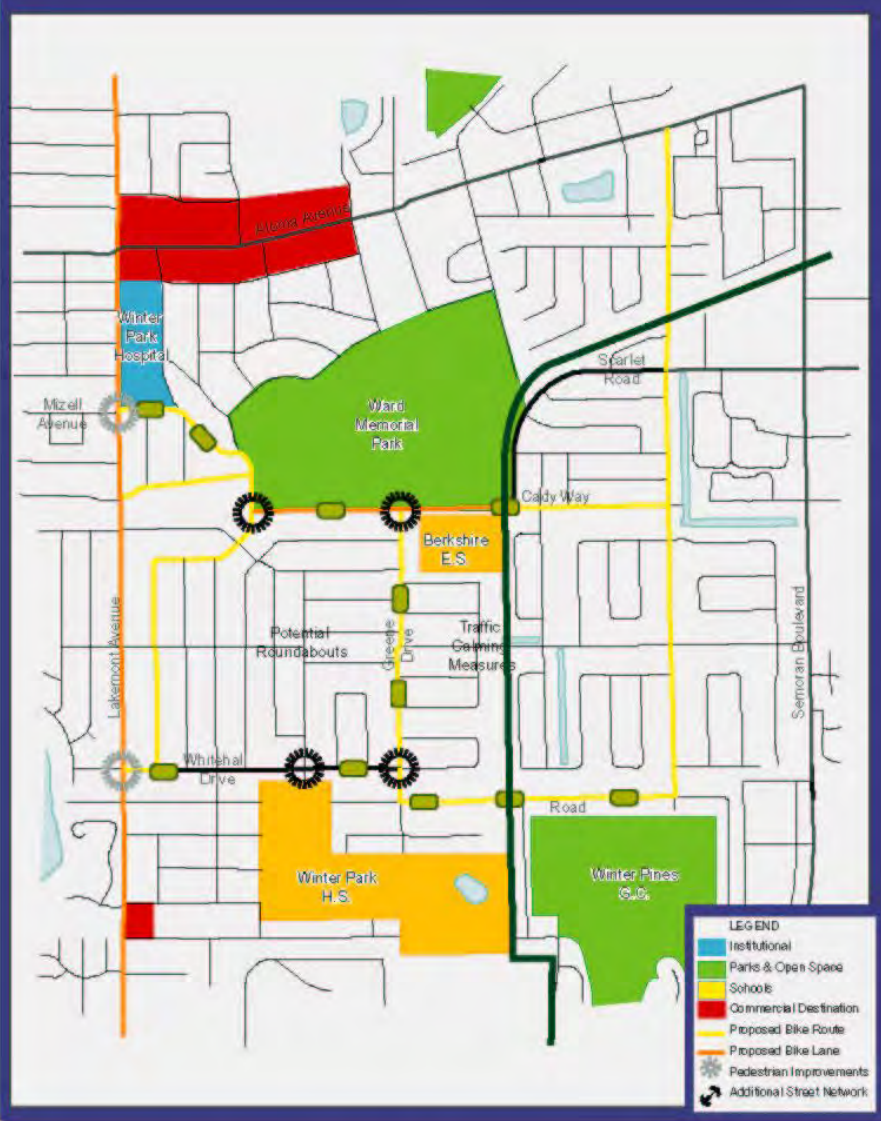
Bicycle Facilities: Signed bicycle routes are located on Whitehall, Summerfield, Brechin, and Edinburgh. Bike lanes are on Cady Way and the Cady Way bike path traverses the east portion of the district.

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations.

Traffic calming: This districts should be redesigned with both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. Coordination with pedestrian crossings is encouraged.

Future Capacity: Street capacity is not an issue in the district.



Intersections

Ped Crossing

Raised Intersection

Roundabout

Mid-block

Island

Narrowing

Brick

Comprehensive Plan Transportation Element

Winter Park, Florida

Whitehall Drive, Greene Drive, Cady Way, Summerfield Road, and Mizell Avenue

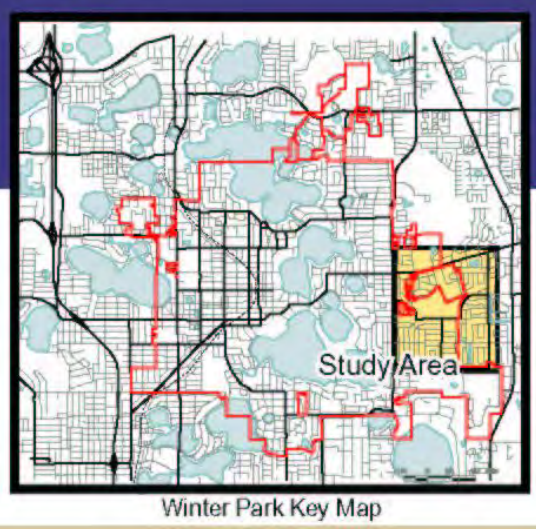
Figure 27

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand on Whitehall

	Current
Demand	7,000 vehicles
Current Capacity	2 lanes: 6,000 vehicles

(Representative Segment: (Representative Segment: Berwick to Selkirk))



Winter Park Key Map

WEBSTER AVENUE

Context

Webster Avenue is an important east-west corridor in Winter Park. Used in combination with Lee Road and Palmer Avenue, this corridor is one of only three corridors which traverse Winter Park. Webster connects Downtown Winter Park to Winter Park Village and the K-Mart Shopping Center.

Vision

Design / Posted Speed: 25 mph

Travel Lanes: Two lanes 11 foot travel lane in each direction (west of Denning) and one lane in each direction (East of Denning).

Turn-Lanes: Left-turn lanes at Orlando Avenue, No left-turn lanes at other intersections. One right-turn lanes to Denning Southbound in the corridor.

Median: No median.

On-street parking: Textured on-street parking between Denning and Pennsylvania Avenue.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated).

Bicycle Facilities: Signed bicycle route in street.

Transit Facilities: Sheltered stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment at Interlachen Avenue (potential roundabout).

Traffic calming: Webster Avenue should be redesigned with both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. (West of Pennsylvania Avenue). Coordination with pedestrian crossings is encouraged.

Future Capacity: The roadway designs meet future capacity.

Island

Roundabout

Narrowing

Section between Denning and Pennsylvania

Comprehensive Plan Transportation Element

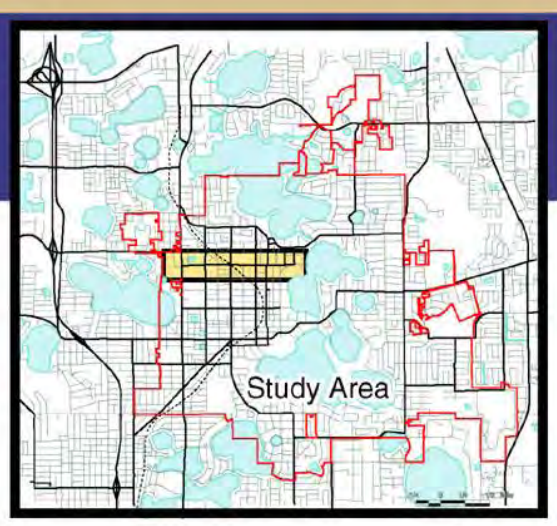
Winter Park, Florida

Webster Avenue Figure 25

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

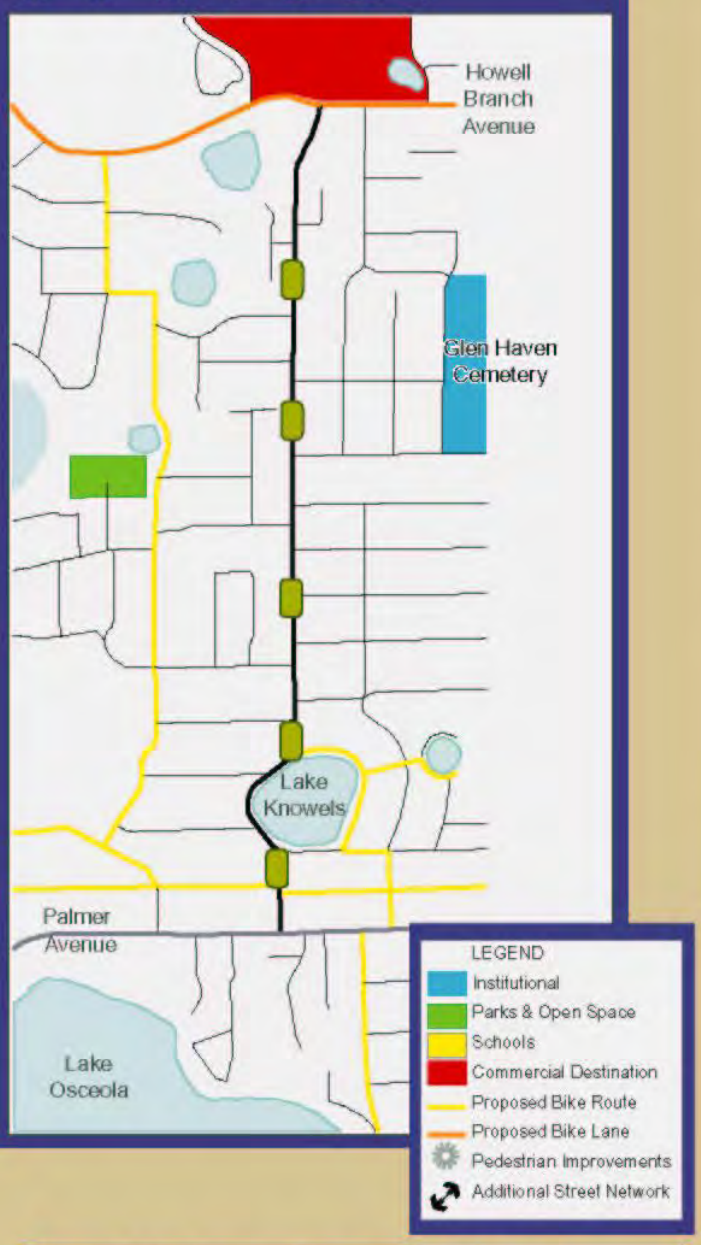
	East of Denning		West of Denning	
	Current	20-Year Forecast	Current	20-Year Forecast
Demand	12,500 vehicles	12,500 vehicles	10,000 vehicles	10,000 vehicles
Current Capacity	24,300 vehicles		11,600 vehicles	
Sufficient Capacity		24,300 vehicles		11,600 vehicles



TEMPLE DRIVE

Temple Drive is a two-lane community street that traverses the residential areas of northern Winter Park, connecting Howell Branch Avenue and Palmer Avenue. Temple serves as an access route between Maitland and Winter Park.

Context



Existing Conditions

Vision

Design / Posted Speed: 25 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: Left-turn lanes at Howell Branch Avenue. No left-turn lanes at other intersections. No right-turn lanes in the corridor.

Median: No median.

On-street parking: No on-street parking.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Crossing Temple at Mayfield Avenue.

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations.

Traffic calming: Temple Drive Avenue should be redesigned with both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. This can include brick segments. Also, coordinate pedestrian crossings with traffic calming measures.

Future Capacity: Roadway design accomodates future traffic.

Intersections

Ped Crossing

Raised Intersection

Roundabout

Mid-block

Island

Narrowing

Brick

Comprehensive Plan Transportation Element

Winter Park, Florida

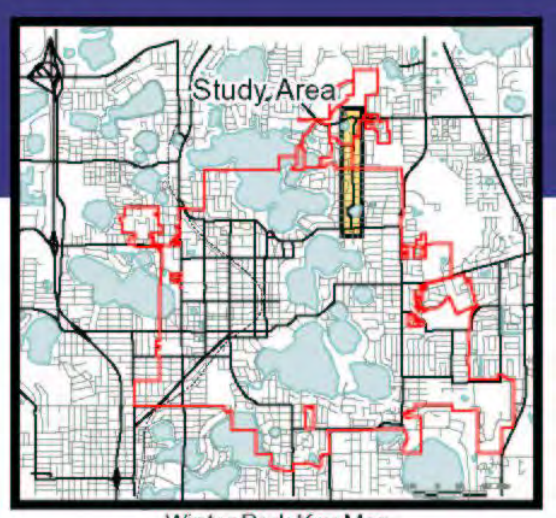
Temple Drive Figure 24

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	6,700 vehicles	7,000 vehicles
Current Capacity	2 lanes: 11,600 vehicles	
Sufficient Capacity	2 lanes: 11,600 Vehicles	

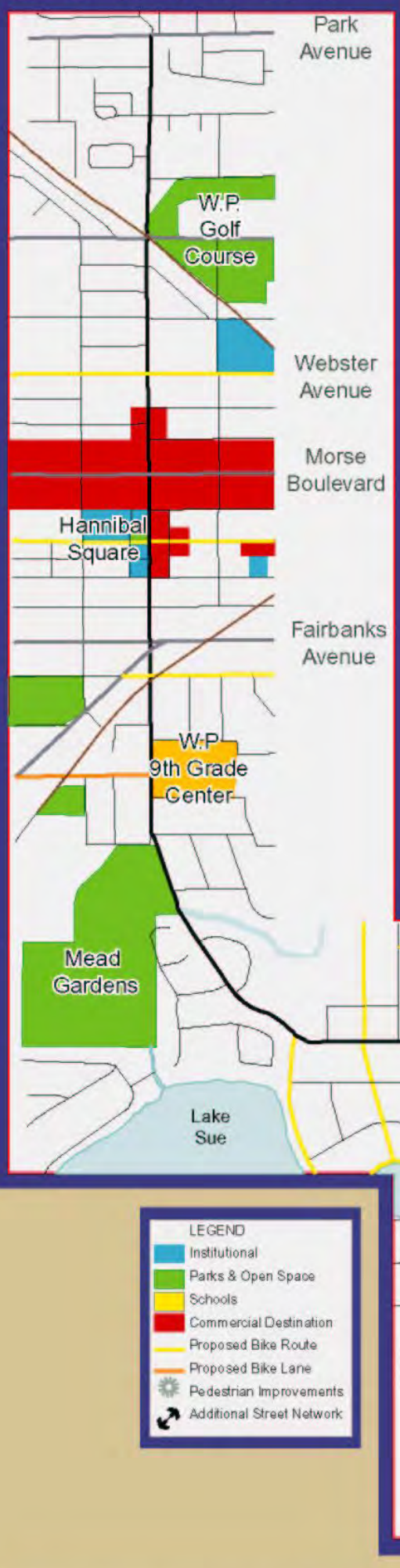
(Representative Segment: Whitesell to Howell Branch)



Winter Park Key Map

PENNSYLVANIA AVENUE, LAKE SUE AVENUE/ OLD WINTER PARK ROAD

Context



The Pennsylvania/Lake Sue/ Old Winter Park Road Corridor is an important north-south corridor in Winter Park. Functionally, the corridor connects eastern portions of Orlando (Baldwin Park) to Winter Park Village and Interstate 4.

Vision

Design / Posted Speed: 25 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: Left-turn lanes at Corrine, Glenridge, Minnesota, Fairbanks, and Webster. No left-turn lanes at other intersections. No right-turn lanes in the corridor.

Median: No median.

On-street parking: On-street parking between Morse & Webster.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Signed bicycle route.

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Morse Blvd. (potential roundabout).

Traffic calming: North of Webster should include both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. Coordination with pedestrian crossings is encouraged.

Future Capacity: The City will support creation of LRT service along Interstate 4 and commuter rail service in the CSX right-of-way (pending design specifications), and a regional east-west LRT Corridor.

Comprehensive Plan Transportation Element

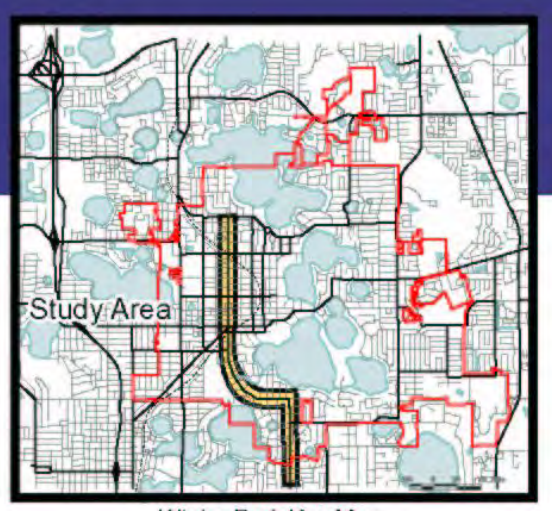
Winter Park, Florida

Pennsylvania/ Lake Sue/ Old Winter Park Road Corridor

Figure 23

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

	Pennsylvania / Lake Sue		Old Winter Park Road	
	Current	20-Year Forecast	Current	20-Year Forecast
Demand	9,000 vehicles	9,000 vehicles	10,000 vehicles	10,000 vehicles
Current Capacity	2 lanes: 11,600 vehicles		2 lanes: 11,600 vehicles	
Sufficient Capacity		2 lanes: 11,600 vehicles		2 lanes: 11,600 vehicles
	Segment: Highland to Melrose		*Segment: Glenridge to Lake Sue*	

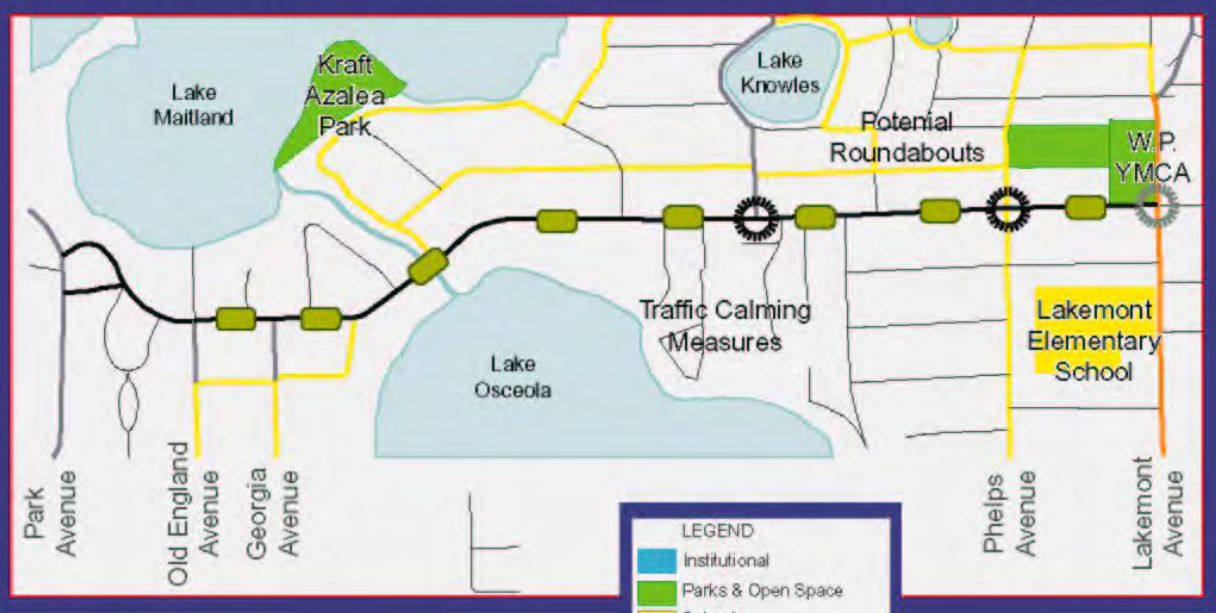


Winter Park Key Map

PALMER AVENUE

Palmer Avenue is an important east-west corridor in Winter Park. This corridor is one of only three corridors which traverse Winter Park. Palmer Avenue connects Lakemont Avenue to Lee Road, via Webster Avenue. Palmer Avenue corridor is entirely residential in character and serves Winter Park Village, Downtown Winter Park and Seminole County traffic.

Context



Existing Conditions

Vision

Design / Posted Speed: 20 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: No left-turn lanes and no right-turn lanes in the corridor.

Median: No median. Incorporrate mid-block pedestrian crossings in spot locations.

On-street parking: No on-street parking.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Signed route between Georgia Avenue and Alabama.

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Temple Drive and Phelps Avenue (potential roundabouts).

Traffic calming: Palmer Avenue should be redesigned with both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. Coordination with pedestrian crossings is encouraged.

Future Capacity: Roadway design accommodates future traffic demand.

Intersections

Ped Crossing

Raised Intersection

Roundabout

Mid-block

Island

Narrowing

Brick

Comprehensive Plan Transportation Element

Winter Park, Florida

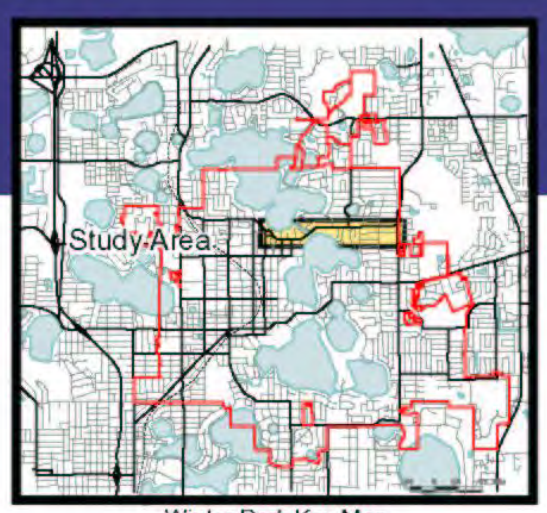
Palmer Avenue Figure 22

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

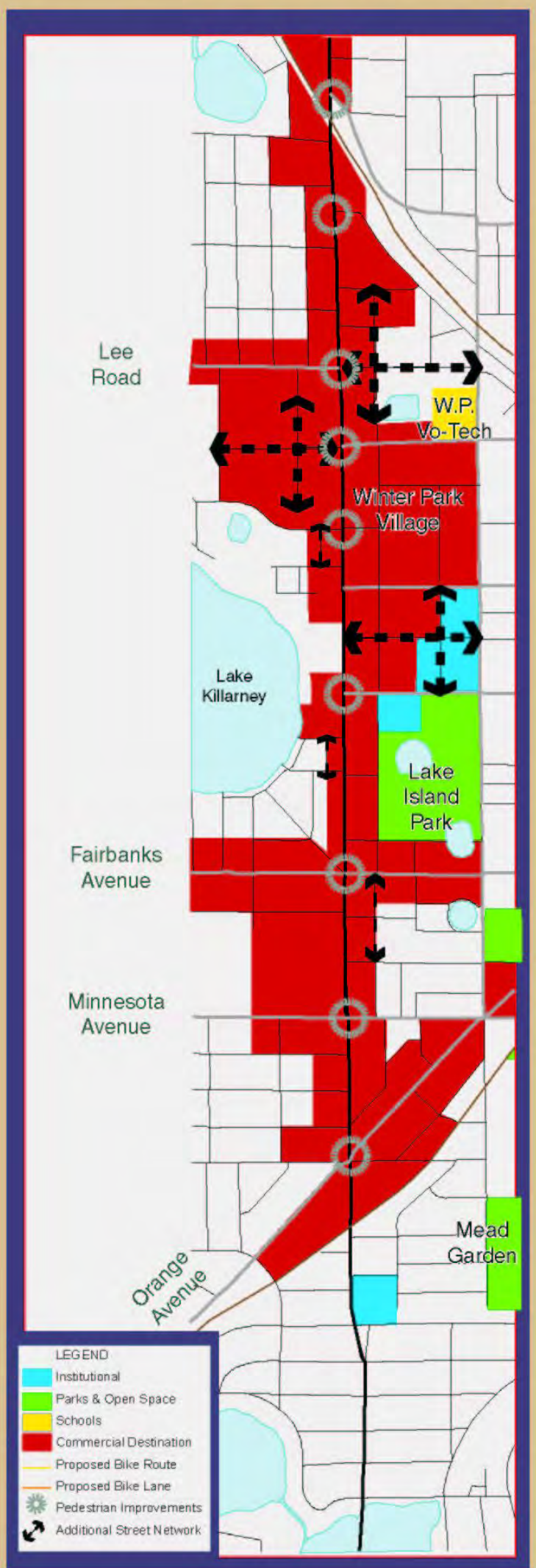
	Current	20-Year Forecast
Demand	12,500 vehicles	11,000 vehicles
Current Capacity	2 lanes: 14,000 vehicles	
Sufficient Capacity	Roadway design accommodates future traffic.	

(Representative Segment: Alabama to Temple)



Winter Park Key Map

ORLANDO AVENUE



Orlando Avenue (US 17/92) is the historic north-south highway in Central Florida, connecting Sanford to Kissimmee. Since the development of Interstate 4, Orlando Avenue continues to be the primary north-south corridor in Winter Park and has evolved to serve the cultural amenities and mobility needs of Maitland, Winter Park, and Orlando.

Vision

Design / Posted Speed: 35 mph

Travel Lanes: Two 11-foot travel lane in each direction

Turn-Lanes: Textured and discontinuous 11-foot left-turn lanes; no right turn lanes.

Median: No median. Incorporrate mid-block pedestrian crossings in spot locations.

On-street parking: No on-street parking.

Sidewalks: 12.5-foot Sidewalks with 4-foot furnishing zone (grated trees, street-lights, newspaper stands) 8-pathway.

Street trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle facilities: No facilities. Convenient parallel routes exist (Denning).

Transit facilities: Sheltered Stops utilizing Winter Park designs.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Morse Boulevard to showcase connections to Downtown.

Traffic calming: No additional measures are needed for Orlando Avenue

Future capacity: The City of Winter Park will support the development of additional street networks in the corridor as well as examine the possibility of eliminating left-turns at key intersections. The City will also support the creation of light rail transit service along Interstate 4, and Commuter rail service in the CSX right-of-way pending design specifications.

Comprehensive Plan Transportation Element

Winter Park, Florida

Orlando Avenue (US 17/92)

Figure 21

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	43,000 vehicles	44,000 vehicles
Current Capacity	4 lanes: 32,000 vehicles	
Sufficient Capacity	Further widening to accommodate vehicular travel is inconsistent with the City's Vision and policies.	

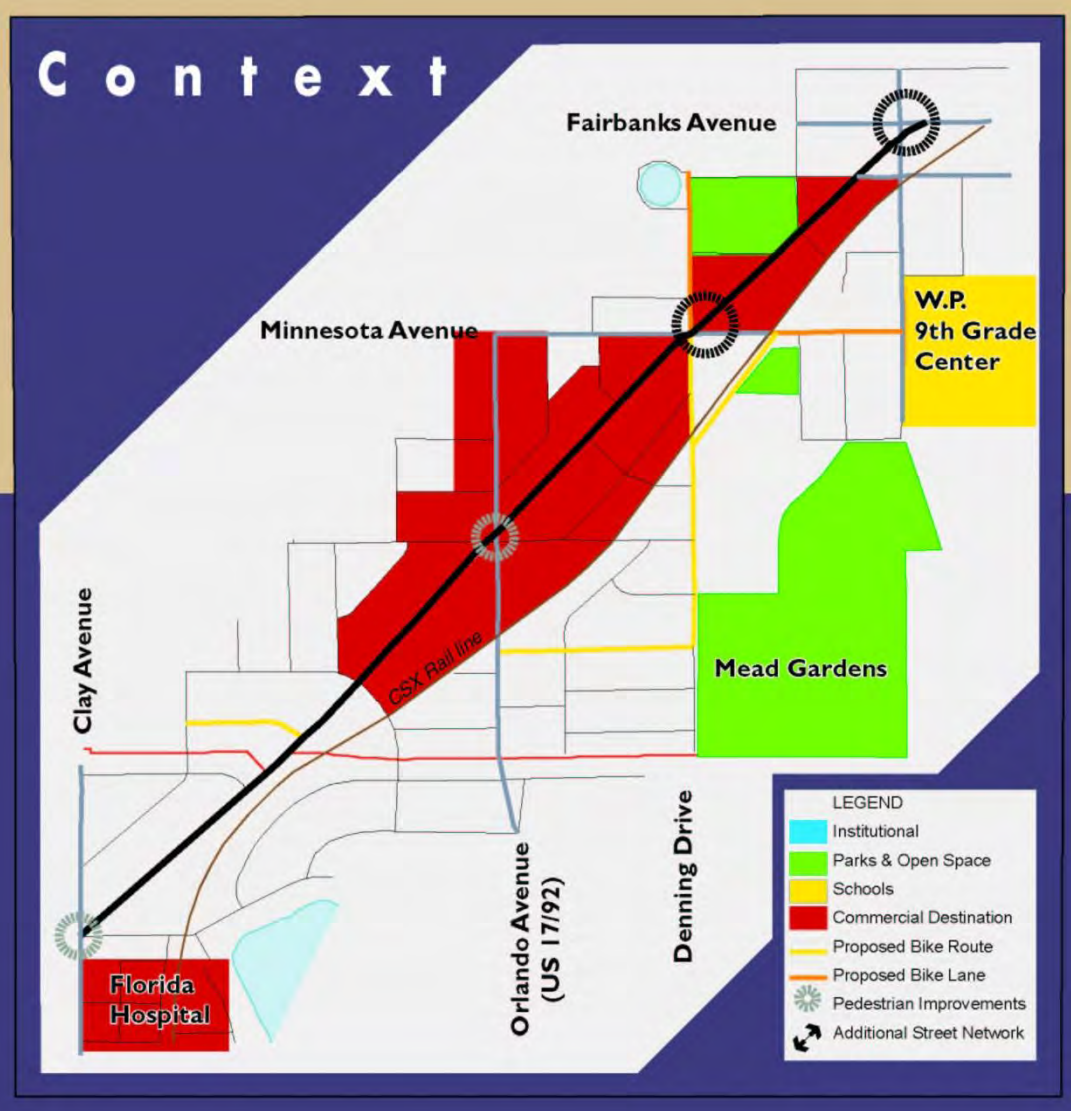
(Representative Segment: Fairbanks to Lee)

Winter Park Key Map

ORANGE AVENUE

Orange Avenue is an important community street in Winter Park and a primary redevelopment opportunity. The street is also an important gateway to Downtown Winter Park. Orange Avenue has many ingredients necessary to create a premiere walking and shopping environment. Orange Avenue serves Florida Hospital and provides access to Interstate 4 through the Orwin Manor neighborhood. Currently Orange Avenue is constrained by the capacity constraints at intersections, such as Clay Avenue, Orlando Avenue, and Minnesota Avenue.

Context



Design / Posted Speed: 30 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: Textured and discontinuous 11-foot left-turn lanes; no right turn lanes.

Median: No median. Incorporate mid-block pedestrian crossings in spot locations.

On-street parking: No on-street parking.

Sidewalks: 12.5-foot sidewalks on both sides North of Orlando Ave. and 5-foot sidewalks on both sides of the street south of Orlando Ave.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Back of Curb bike lanes south of Orlando Ave.

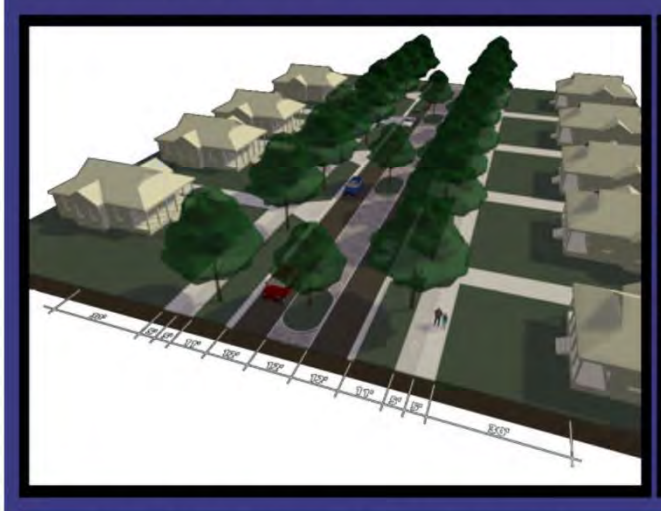
Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Minnesota and Denning Avenue (potential roundabout).

Traffic calming: No additional measures are needed for Orange Avenue.

Future Capacity: The City of Winter Park will support the development of additional street network parallel to Orange Avenue and the support creation of light rail transit service along Interstate 4 and commuter rail service in the CSX right-of-way (pending design specifications).

Vision



South of Orlando Avenue (US 17/92) The street is designed with two travel lanes and a textured third lane for driveway access. Protected bike lanes and 5' sidewalk are placed behind the curb. Transit vehicles stop in street.

North of Orlando Avenue (US 17/92) The street is designed with two travel lanes, on-street parking, and a textured third lane for driveway access. 12.5' sidewalk are placed behind the curb. Transit vehicles stop in the street.

Comprehensive Plan Transportation Element

Winter Park, Florida

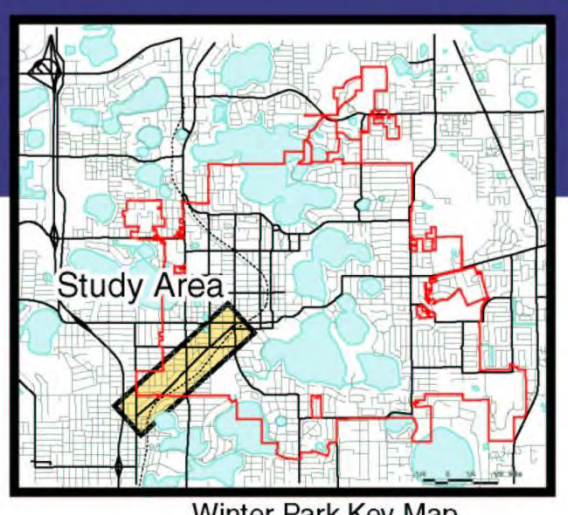
Orange Avenue Figure 20

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	17,000 vehicles	18,000 vehicles
Current Capacity	4 lanes: 32,500 vehicles	
Future Capacity		2 lanes: 18,000 vehicles

(Representative Segment: Orlando to Fairbanks)

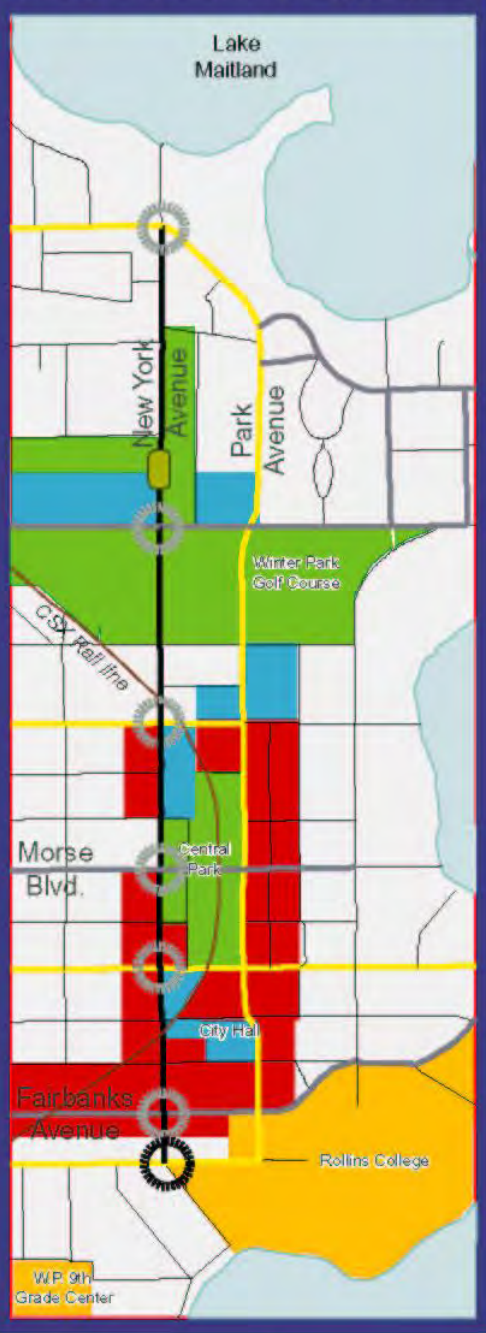


Winter Park Key Map

New York AVENUE

New York Avenue is a two-lane community street that traverses downtown Winter Park. New York serves as the western boundary of Central Park and is the primary alternative to Park Avenue.

Context



LEGEND
- Institutional
- Parks & Open Space
- Schools
- Commercial Destination
- Proposed Bike Route
- Proposed Bike Lane
- Pedestrian Improvements
- Additional Street Network

Vision

Design / Posted Speed: 25 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: Left-turn lanes at Fairbanks Avenue, Morse, Canton and Webster. No left-turn lanes at other intersections. No right-turn lanes in the corridor.

Median: No median.

On-street parking: On-street parking.

Sidewalks: **8-10** foot sidewalks on both sides of the street.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Signed bicycle facility.

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Holt Avenue.

Traffic calming: Traffic calming should be impleneted north of Webster Avenue.

Future Capacity: No additional capacity is needed.

North of Morse Blvd.

South of Morse Blvd.

Comprehensive Plan Transportation Element

Winter Park, Florida

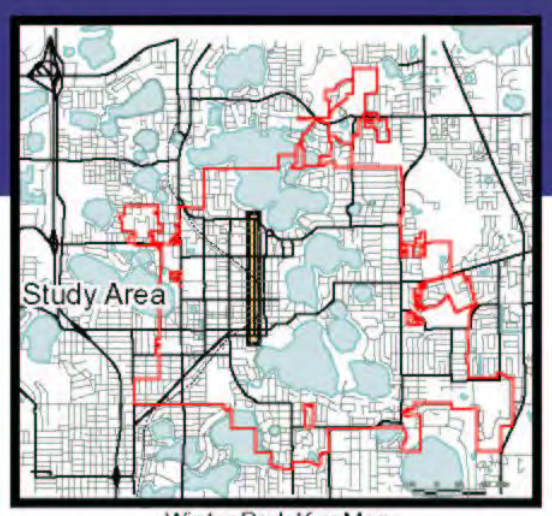
New York Avenue Figure19

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	7,500 vehicles	9,000 vehicles
Current Capacity	2 lanes: 11,600 vehicles	
Sufficient Capacity		2 lanes: 11,600 vehicles

(Representative Segment: Morse to Canton)

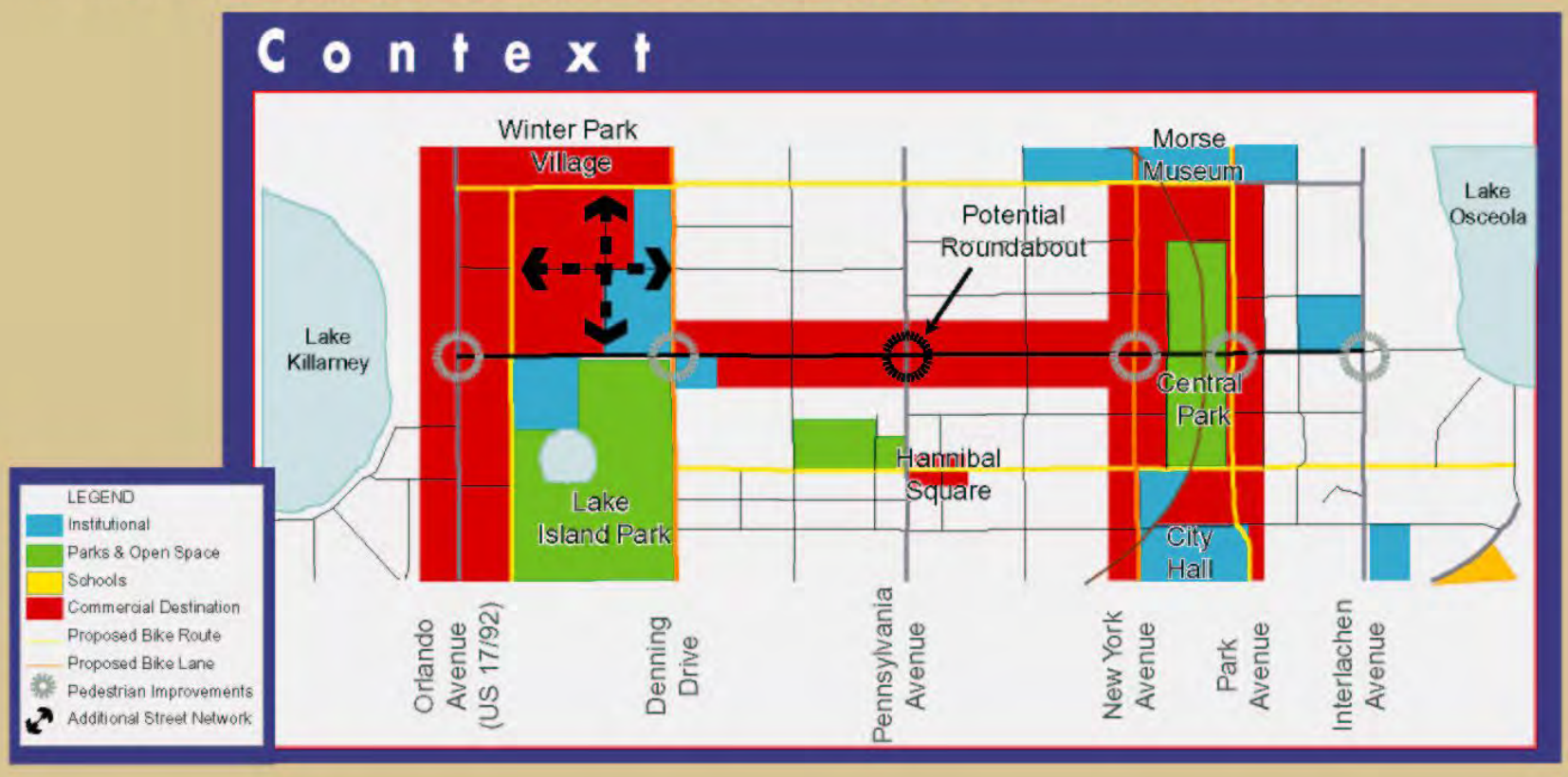


Winter Park Key Map

MORSE BOULEVARD

Morse Boulevard is the historic primary east-west corridor in Winter Park. Symbolically, Morse Boulevard connects Lake Killarney to Lake Osceola, while functionally it connects Orlando Avenue to Downtown Winter Park. Morse Boulevard has evolved to become the cultural extension of Downtown and is an important corridor in connecting the Winter Park Village to Park Avenue.

Context



Vision

Design/Posted Speed: 30mph

Travel Lanes: One 11-foot travel lane in each direction

Turn-Lanes: 10-foot left-turn lanes at intersections; no right turn-lanes.

Median: Wide linear park (recreation of historic median) heavily landscaped with park amenities such as fountains and sculptures.

On street parking: 7-foot wide textured parking with landscaped bulb-outs, which utilize valley-gutter drainage.

Sidewalks: 10-foot Sidewalks with 2-foot furnishing zone (grated trees, street-lights, newspaper stands) 8-pathway

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

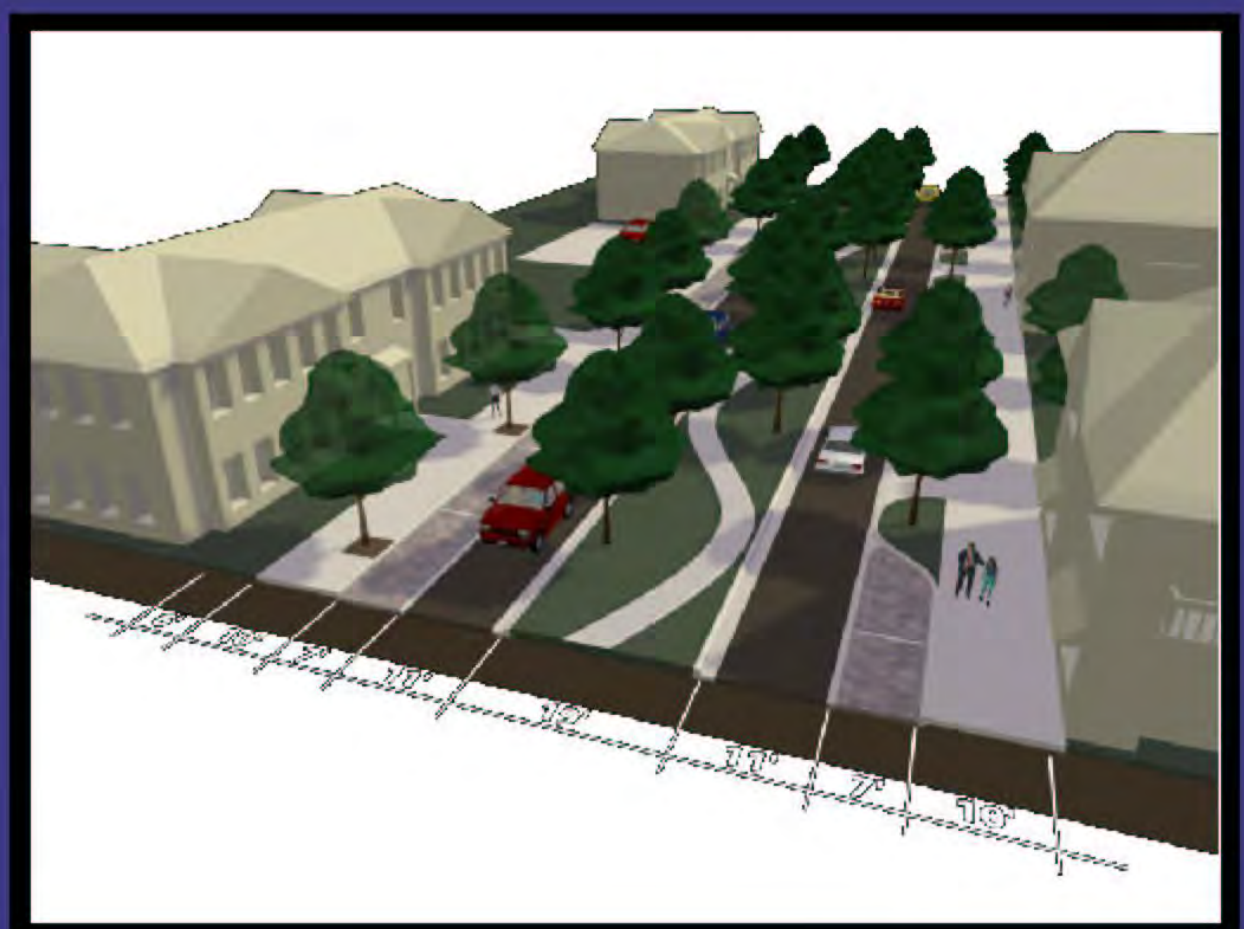
Bicycle Facilities: Signed on-street routes; parallel routes, wide sidewalks for children.

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus pullouts at high volume locations.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Orlando Avenue to showcase connections to Downtown. Potential roundabout should be considered at Pennsylvania.

Traffic calming: No additional traffic calming measures are need for Morse Blvd.

Future Capacity: The City of Winter Park will support the enhancement of regional and local east-west transit service, creation of light rail transit service along Interstate 4, and Commuter rail service in the CSX right-of-way (pending design specifications).



Comprehensive Plan Transportation Element

Winter Park, Florida

Morse Boulevard Figure 18

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	8,500 vehicles	6,500 vehicles
Current Capacity	4 lanes: 24,300 vehicles	
Future Capacity		2 lanes: 11,60 vehicles

(Representative Segment: Denning to Pennsylvania)

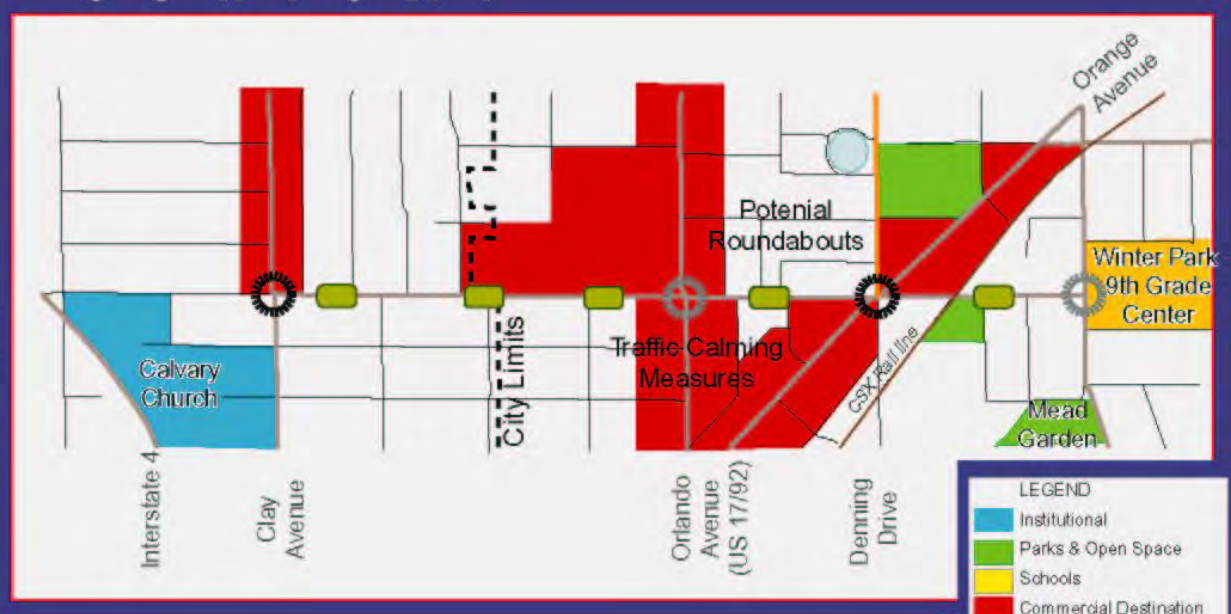
Winter Park Key Map

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

MINNESOTA AVENUE

Minnesota Avenue is a two-lane community street that runs parallel to Fairbanks Avenue. Minnesota Avenue borders but does not traverse several residential neighborhoods. Minnesota is an important access route for children accessing the Winter Park 9th Grade Center and Azalea Lane Park.

Context



Existing Conditions

Vision

Design / Posted Speed: 25 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: No left-turn lanes and no right-turn lanes in the corridor.

Median: No median.

On-street parking: No on-street parking.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Bike lanes east of Orange Avenue

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Minnesota Drive and Orange Avenue (potential roundabouts).

Traffic calming: Minnesota Avenue should be redesigned with both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. Coordination with pedestrian crossings is encouraged.

Future Capacity: The roadway accomodates future traffic.

Intersections

Ped Crossing

Raised Intersection

Roundabout

Mid-block

Island

Narrowing

Brick

Comprehensive Plan Transportation Element

Winter Park, Florida

Minnesota Avenue Figure 17

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	7,000 vehicles	
Current Capacity	2 lanes: 11,600 vehicles	
Sufficient Capacity	Roadway design accomodates future traffic.	

(Representative Segment: City Limits to Orlando Avenue)

Winter Park Key Map

LEE ROAD

Lee Road is an important east-west corridor in the Orlando Region and Winter Park. This corridor connects Interstate 4 to Orlando Avenue (US 17/92) and serves the City of Maitland, Winter Park Village, and the K-Mart Shopping Center.

Vision

Design / Posted Speed: 45 mph

Travel Lanes: Two 12-foot travel lane in each direction

Turn-Lanes: Textured and discontinuous 11-foot left-turn lanes; no right turn lanes.

Median: Landscaped median, mid-block pedestrian crossings in spot locations.

On-street parking: No on-street parking.

Sidewalks: 12.5-foot Sidewalks with 4-foot furnishing zone (grated trees, street-lights, newspaper stands) 8-pathway easement will be aquired through setback easements.

Street trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle facilities: Bike lanes.

Transit facilities: Sheltered Stops utilizing Winter Park designs.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations.

Traffic calming: No additional measures are needed for Lee Road

Future capacity: The City of Winter Park will support the development east-west transit system and the creation of light rail transit service along Interstate 4, and Commuter rail service in the CSX right-of-way (pending design specifications).

Context

Comprehensive Plan Transportation Element

Winter Park, Florida

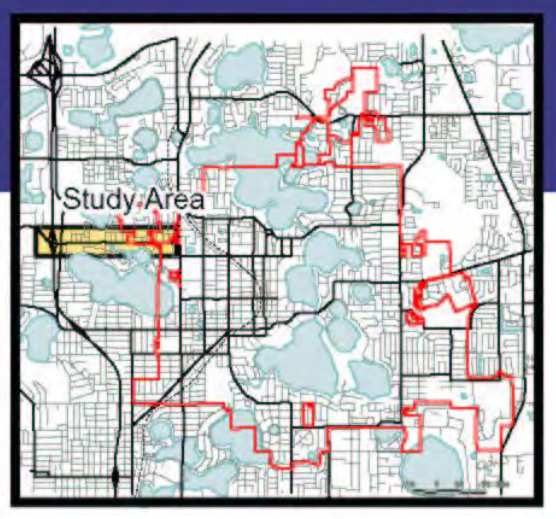
Lee Road Figure 16

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	41,000 vehicles	41,000 vehicles
Current Capacity	4 lanes: 35,000 vehicles	
Sufficient Capacity	Further widening to accommodate vehicular travel is inconsistent with the City's Vision and policies.	

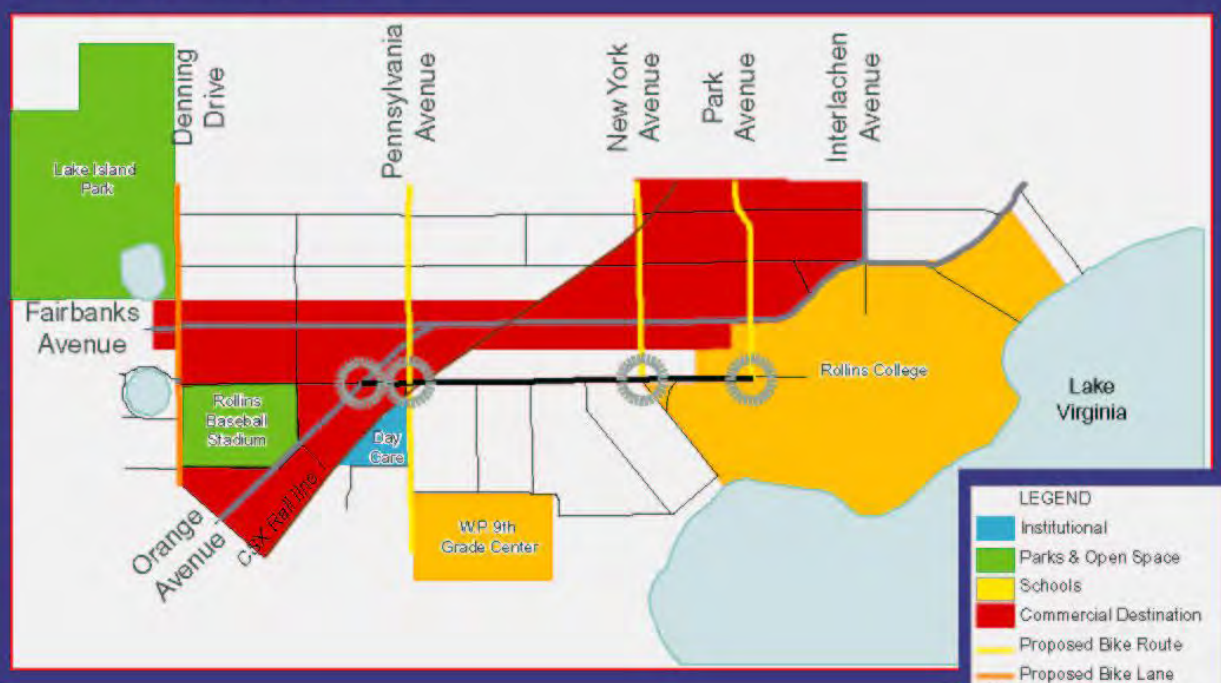
(Representative Segment : City Limits to Orlando Avenue)



HOLT AVENUE

Holt Avenue is a two-lane community street parallel to Fairbanks Avenue. Holt connects Orange Avenue to Rollins College and traverses the College Quarter Neighborhood. Holt is a favorite alternative route to Fairbanks Avenue when accessing Rollins College and Downtown Winter Park.

Context



Existing Conditions

Vision

Design / Posted Speed: 20 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: No left-turn lanes and no right-turn lanes in the corridor.

Median: No median.

On-street parking: No on-street parking.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Signed bicycle route

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with stop signs at warranted locations.

Traffic calming: Holt Avenue should be redesigned with both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. Coordination with pedestrian crossings is encouraged.

Future Capacity: The City of Winter Park will support the development of additional street network crossing CSX and the support creation of an east-west transit corridor in the region.

Intersections

Ped Crossing

Raised Intersection

Roundabout

Mid-block

Island

Narrowing

Brick

Comprehensive Plan Transportation Element

Winter Park, Florida

Holt Avenue Figure 15

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	6,000 vehicles	6,000 vehicles
Current Capacity	2 lanes: 11,600 vehicles	
Sufficient Capacity	Roadway design accommodates future traffic demand	

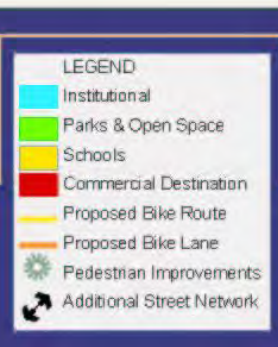
(Representative Segment: New York to Park)

Winter Park Key Map

GLENRIDGE WAY

Glenridge Way is an important east-west corridor in Winter Park. This corridor is one of only three corridors which traverse Winter Park. Glenridge Way connects Corrine Drive, via General Reese Road, in Orlando to Lakemont Avenue in Winter Park, serving Glenridge Middle School, Winter Park High School and numerous residential neighborhoods. In the future Glenridge Way will also function as the northern boundary road to the Baldwin Park redevelopment of the Orlando Naval Training Center.

Context



Vision

Design / Posted Speed: 25 mph

Travel Lanes: One brick 10/11 foot travel lane in each direction.

Turn-Lanes: Left-turn lanes at Lakemont Avenue, General Reese, and Old Winter Park Road. No left-turn lanes at other intersections. No right-turn lanes in the corridor.

Median: No median. Pedestrian Island in Key Locations.

On-street parking: No on-street parking.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated).

Bicycle Facilities: 5' concrete bike lane.

Transit Facilities: Sheltered stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations.

Traffic calming: No additional traffic calming is needed.

Future Capacity: The City of Winter Park will support the development of additional street network parallel through the naval training center. and the support creation of an east-west transit corridor in the region.

Comprehensive Plan Transportation Element

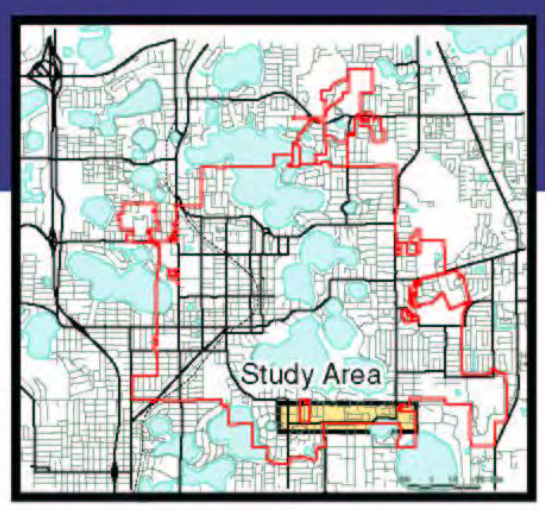
Winter Park, Florida

Glenridge Way Figure14

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	17,500 vehicles	24,000 vehicles
Current Capacity	2 lanes: 19,800 vehicles	
Sufficient Capacity	Further widening to accommodate vehicular travel is inconsistent with the City's Vision and policies.	

(Representative Segment: General Reese to Lakemont)

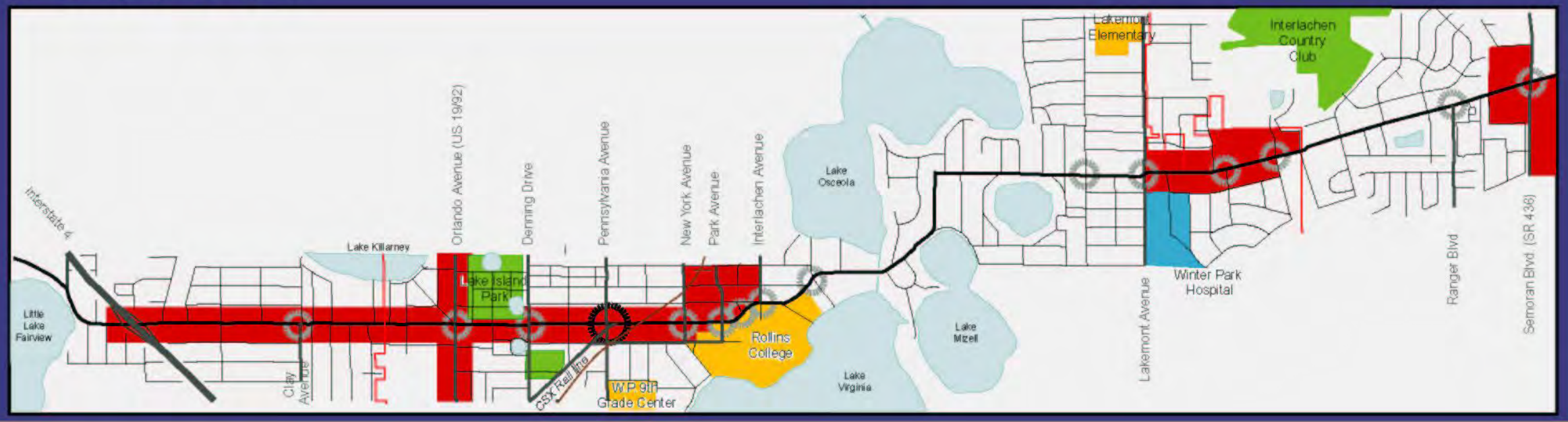


GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

FAIRBANKS ALOMA

The Fairbanks and Aloma Corridor is an important east-west corridor in the Orlando Region and Winter Park. This corridor connects Interstate 4 to Downtown Winter Park, Winter Park Hospital and South Seminole County.

Context



Vision

Design / Posted Speed: 25-35 mph varies with each section.

Travel Lanes: Varies with each section

Turn-Lanes: In areas with turn lanes provide textured and discontinuous 11-foot left-turn lanes; no right turn lanes..

Median: Median east of Lakemont. No median else where, mid-block pedestrian crossings in spot locations.

On-street parking: No on-street parking.

Sidewalks: Minimum 5-8-foot Sidewalks (varies by section)

Street trees: Palms spaced 20-feet on center in downtown (City initiated & maintained planting).

Bicycle facilities: No facilities. Convenient parallel routes exist.

Transit facilities: Sheltered Stops utilizing Winter Park designs.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Park Avenue.

Traffic calming: No additional measures are needed for Fairbanks-Aloma Avenues.

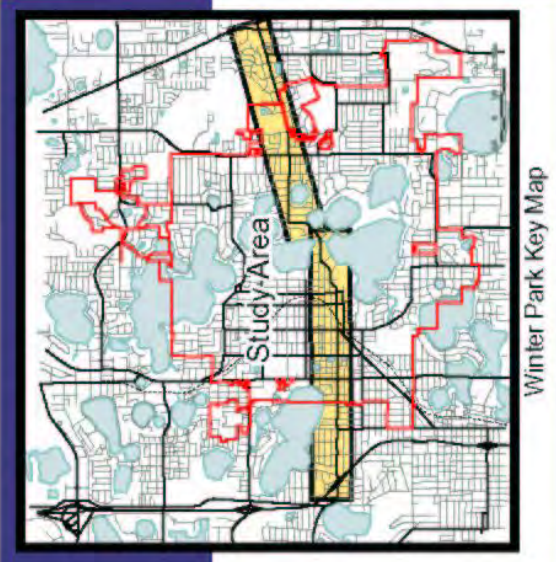
Future capacity: The City of Winter Park will support the development of additional street network and examine the possibility of eliminating left-turns at key intersections in the corridor. The City will also support the creation of an east-west transit service as well as support light rail transit service along Interstate 4, and commuter rail service in the CSX right-of-way pending (design specifications).


West of Orlando Ave.


Between Orlando Ave. & Orange Ave.


Between Orange Ave. & Lakemont Ave.


East of Lakemont Ave.



Winter Park Key Map

Comprehensive Plan
Transportation Element
Winter Park, Florida

West of Orlando Ave.					
	Current	33,000 vehicles	4 lanes: 38,000 vehicles	Further widening to accommodate vehicular travel is inconsistent with the City's Vision and policies.	
	20-Year Forecast	40,000 vehicles			
Orlando to Orange Ave.					
	Current	30,000 vehicles	4 lanes: 38,000 vehicles	Further widening to accommodate vehicular travel is inconsistent with the City's Vision and policies.	
	20-Year Forecast	39,000 vehicles			
Orange to Lakemont Ave.					
	Current	38,000 vehicles	4 lanes: 38,000 vehicles	Further widening to accommodate vehicular travel is inconsistent with the City's Vision and policies.	
	20-Year Forecast	52,000 vehicles			
East of Lakemont Avenue					
	Current	42,000 vehicles	4 lanes: 32,500 vehicles	Further widening to accommodate vehicular travel is inconsistent with the City's Vision and policies.	
	20-Year Forecast	52,000 vehicles			
		Demand	Current Capacity	Sufficient Capacity	

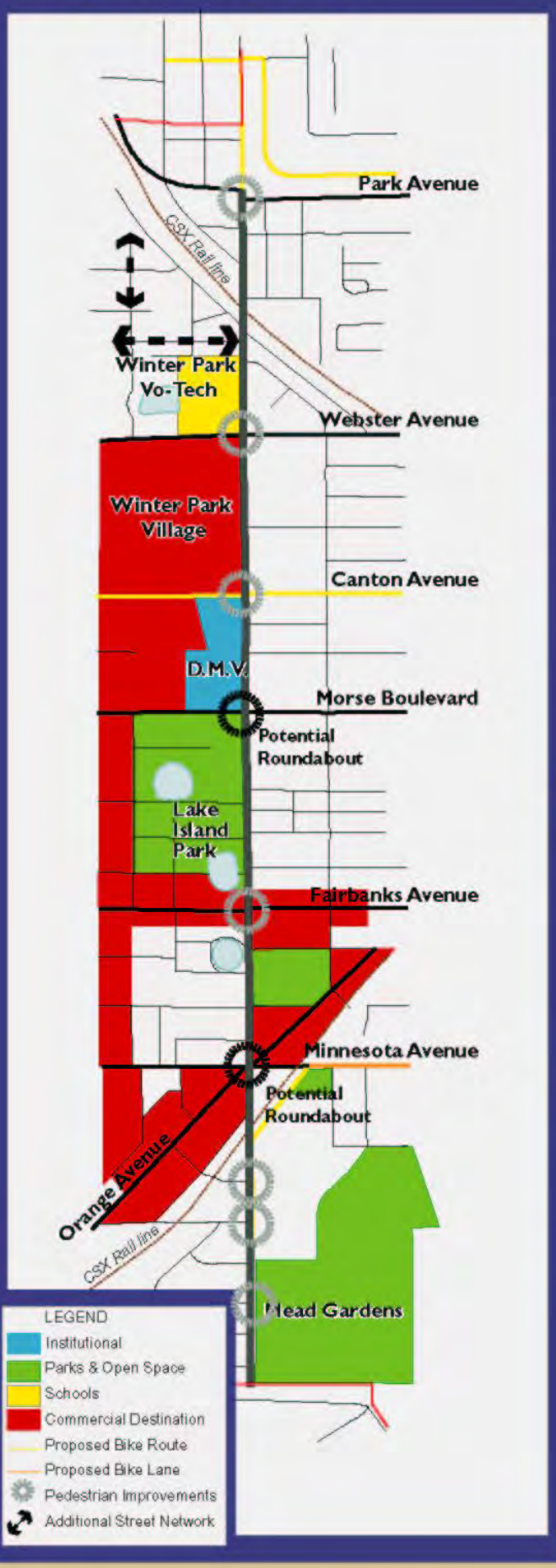
Fairbanks & Aloma Avenues
Figure 13

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

DENNING DRIVE

Denning Drive is a four-lane undivided community street parallel to Orlando Avenue (US 17/92). Denning serves Winter Park Village, residential neighborhoods, Lake Island Park and Mead Gardens.

Context



Vision

Design / Posted Speed: 25 mph

Travel Lanes: One 11 foot travel lane in each direction.

Turn-Lanes: Left-turn lanes at Fairbanks Avenue and Webster Avenue. No left-turn lanes at other intersections.

Median: No median.

On-street parking: Textured on-street parking along non-residential land uses.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated).

Bicycle Facilities: Behind curb bike lanes.

Transit Facilities: Sheltered stops utilizing Winter Park designs with pull-outs.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Orange Avenue and Morse Blvd. (potential roundabouts).

Traffic calming: South of Orange Avenue traffic and north of Webster Avenue should utilize traffic calming measures with both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. Coordination with pedestrian Crossings is encouraged.

Future Capacity: The City of Winter Park will support the development of additional street network and the support creation of light rail transit service along Interstate 4 and commuter rail service in the CSX right-of-way (pending design specifications).

Calming Measures

Mid-Block

Intersections

Vision

Comprehensive Plan Transportation Element

Winter Park, Florida

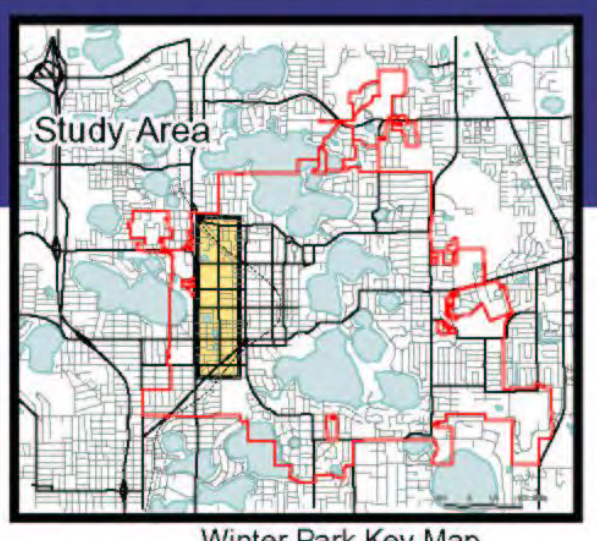
Denning Drive Figure 12

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	9,000 vehicles	6,500 vehicles
Current Capacity	4 lanes: 24,300 vehicles	
Future Capacity		2 lanes: 11,600 vehicles

(Representative Segment: Canton to Webster)

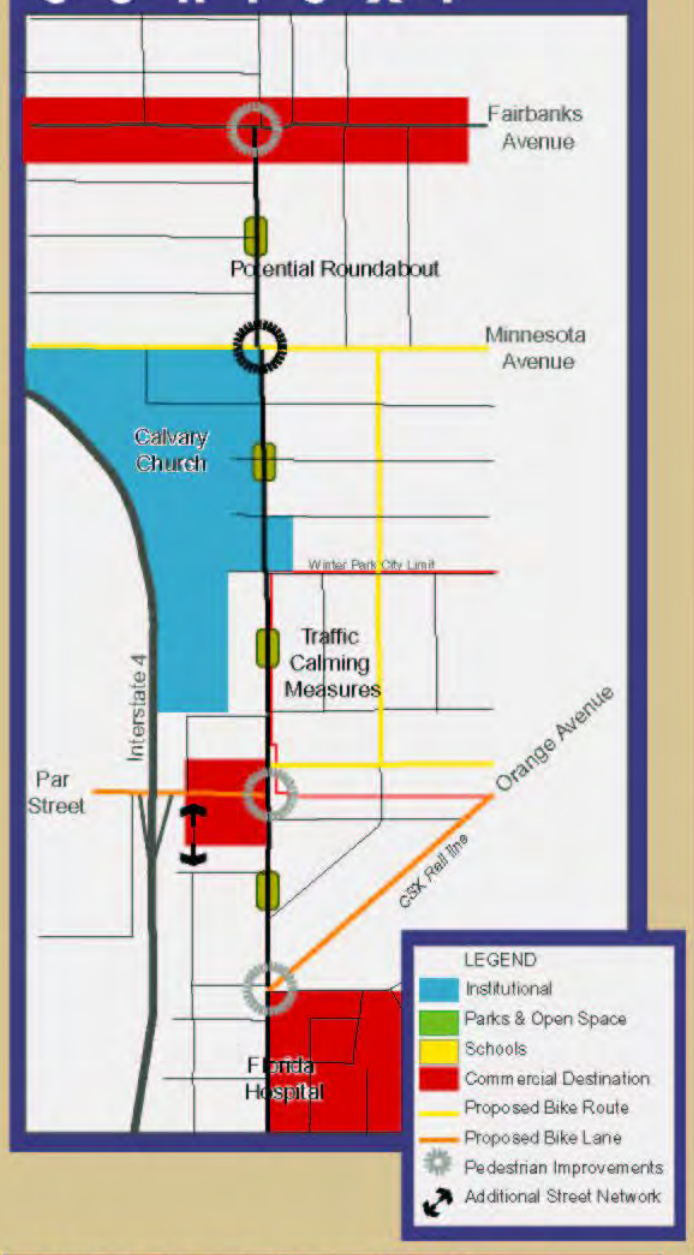


Winter Park Key Map

CLAY AVENUE

Clay Avenue is a two-lane community street that traverses the western edge of Winter Park and Orwin Manor Neighborhood, connecting Fairbanks Avenue and Par Street to Orange Avenue. Clay serves as secondary access between Interstate 4 and Florida Hospital.

Context



Existing Conditions

Vision

Design / Posted Speed: 25 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: Left-turn lanes at Fairbanks Avenue and Par Street. No left-turn lanes at other intersections. No right-turn lanes in the corridor.

Median: No median.

On-street parking: No on-street parking.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Crossing Clay Avenue at Westchester.

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations. Special treatment is needed at Minnesota Avenue (potential roundabout).

Traffic calming: Clay Avenue should be redesigned with both intersection treatments and mid-block treatments spaced approximately every 600-800 feet. Coordination with pedestrian crossings is encouraged

Future Capacity: The City of Winter Park will support the development of additional street network parallel to Clay Avenue and the support creation of light rail transit service along Interstate 4 and commuter rail service in the CSX right-of-way (pending design specifications).

Intersections

Ped Crossing

Raised Intersection

Roundabout

Mid-block

Island

Narrowing

Brick

Comprehensive Plan Transportation Element

Winter Park, Florida

Clay Avenue Figure11

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

Daily Vehicular Demand

	Current	20-Year Forecast
Demand	11,000 vehicles	14,000 vehicles
Current Capacity	2 lanes: 11,600 vehicles	
Sufficient Capacity	Further widening to accommodate vehicular travel is inconsistent with the City's Vision and policies.	

(Representative Segment: Westchester to Harmon)

Winter Park Key Map

LAKEMONT AVENUE

Lakemont is an important north-south corridor in Winter Park. Lakemont connects Seminole County to Orlando and serves Winter Park Hospital, Winter Park High School, Lakemont Elementary, and numerous residential neighborhoods. The redevelopment of the training center will further heighten Lakemont's role as a primary north-south corridor. The street network of the Baldwin Park Development has the potential to connect Lakemont and Colonial Drive.

Vision

Design / Posted Speed: 30 mph

Travel Lanes: One 10/11 foot travel lane in each direction.

Turn-Lanes: Textured continuous left turn lane, where currently in place, as well as north of Aloma Avenue. No right-turn lanes in the corridor.

Median: No median, pedestrian islands in key locations.

On-street parking: No on-street parking.

Sidewalks: 5-foot sidewalks on both sides of the street behind a landscaped parkway.

Street Trees: Oaks spaced 30-feet on center (City initiated & maintained planting).

Bicycle Facilities: Concrete & striped bike lanes.

Transit Facilities: Sheltered Stops utilizing Winter Park designs with bus stops on-street.

Intersections: Textured pedestrian crossings with mast arm signals at warranted locations.

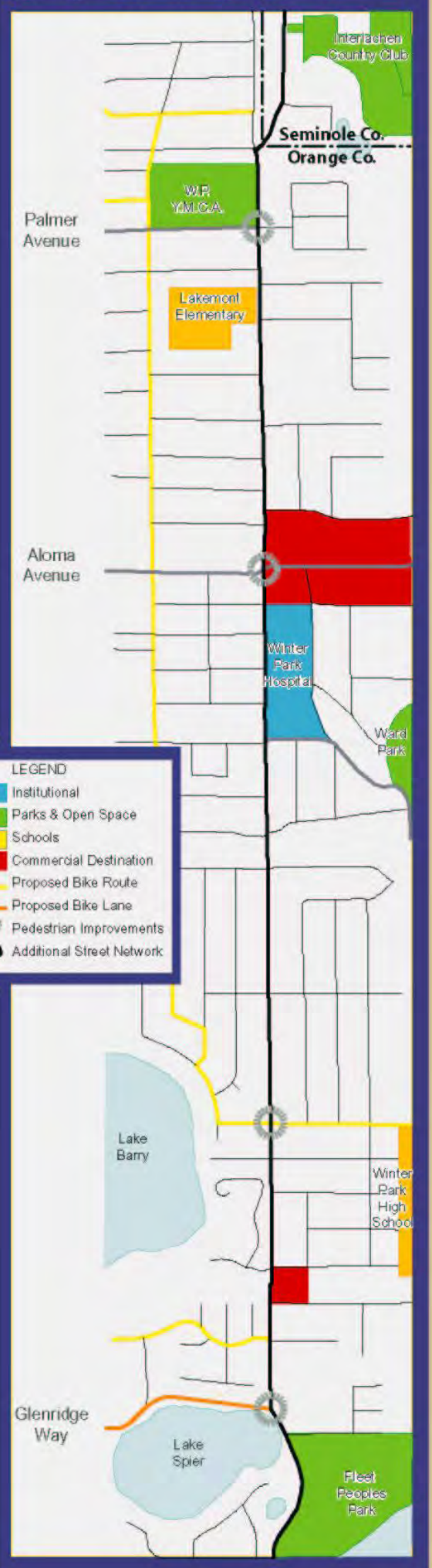
Future Capacity: The City of Winter Park will support the development of fixed guideway transit, serving east Orange County and southeast Seminole County.

North of Aloma

Whitehall of Aloma

South of Whitehall

Context



Comprehensive Plan Transportation Element

Winter Park, Florida

Lakemont Avenue Figure 26

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

	Glenridge to Aloma Ave.		Aloma to Palmer Avenue	
	Current	20-Year Forecast	Current	20-Year Forecast
Demand	15,000 vehicles	17,000 vehicles	19,000 vehicles	18,000 vehicles
Current Capacity	2 lanes: 19,800 vehicles		4 lanes: 34,900 vehicles	
Sufficient Capacity		2 lanes: 19,800 vehicles		2 lanes: 16,500 vehicles

Winter Park Key Map

URBAN FORESTRY MANAGEMENT

CITY OF WINTER PARK, FLORIDA
ESTABLISHED 1882
CITY OF CULTURE AND HERITAGE

BACKGROUND:

One of the many things that make Winter Park our special home is the lush tree canopy. In recent years, it has become apparent that the mature canopy is in a state of decline and will require significant effort to rebuild over the next several years.

Staff has developed a draft Urban Forestry Management Plan (UFMP) that sets the stage for addressing the policy questions required to work towards maintaining the canopy of the future. The draft plan was presented last year to the City Commission and Tree Preservation Board. After initial discussions a sample street was developed to explain visually the required work to be done. Staff has refined the draft plan and is working with the Tree Preservation Board to host a community meeting in on Monday, September 30. Staff plans to make final recommendations regarding the UFMP and the associated policies to the Commission in October.

STRATEGIC QUESTIONS:

1. **ROW Pruning**
    a. Who should be responsible for pruning ROW trees?
        i. If city, how should we fund?
            1. Through growth in the budget
            2. Tax increase
            3. Reduction in other services
        ii. If adjacent property owners?
            1. Do we continue to prune with city resources once a high hazard?
            2. Do we implement more aggressive code enforcement?

2. **Replanting the ROW**
    a. Should the adjacent property owner have a say in replanting process
        i. Tree – yes or no?
        ii. Species selection?
    b. Who should be responsible for watering the tree?
3. **Tree Diversity**
    a. What should our effort to diversify be?
        i. Should we establish a percentage of oak to be planted in the ROW?
        ii. Should we infill ROW with other species?
    b. What effort should be made to encourage species diversity on private property?

STAFF RECOMMENDATION:

1. **ROW Pruning**
    a. The city should begin to take responsibility for ROW Tree Maintenance
        i. The expectation should be that we will grow into the responsibility by reducing and eliminating hazards first and working towards a routine maintenance schedule over time. The process is expected to take 5-7 years. Hazard mitigation pruning and dead tree removal would be the focus for the first three years.
        ii. The city is currently funding a portion of the work and has made significant operating changes over the last two years to increase productivity within the funding . As part of the FY 2014 budget, the City Commission allocated an additional $250K towards dead tree removal and hazard mitigation pruning. It is anticipated that an additional two years of heavy funding will be required before a more normal program can be estimated. Recommend funding through growth in budget and additional operational efficiencies over the next two years and then revaluate need.
2. **Replanting the ROW**
    a. Adjacent property owners should have a say in both replanting the ROW and the species selection.

i. While most property owners are excited to know the ROW will be replanted, staff can encourage those that may have concerns to participate through offering educational materials and one-on one conversation. Additionally, if the city decided to take responsibility for the ROW maintenance, that will alleviate some of the financial concerns that are barriers today regarding future maintenance of the trees.
ii. Staff can suggest and encourage certain species, however, would like to have the flexibility to plant the homeowners' selection if it is within the city's selection criteria.

b. Homeowners should be encouraged to water and care for newly planted trees. Reducing the demand on city staff to water increases their availability to prune and maintain mature trees.

3. Tree Diversity

a. Scientific research and history show that we should make efforts to diversify species.
i. One of the many gems of Winter Park is the beautiful canopy. Staff clearly understands the importance of maintaining this look for future generations. Through proper planning and recognition that the City will be at risk for significant tree loss if an oak disease finds its way to Florida, we can maintain a beautiful canopy. Staff suggests a goal of planting no more than 50% oak in the ROW over the next five years. This is **not** a goal of reducing oaks to 50 percent of the canopy it is a short term goal, specific to the planting of new ROW trees, to determine a five year impact of encouraging diversity. Clearly, the goal could be changed at any time.
ii. Further, staff recommends diversifying species within the oak family and not replanting laurel oaks within the ROW (due to their long-term maintenance costs).

b. Staff recommends encouraging diversity on private property. This can be accomplished by working with homeowners, developers and through tree give-a-ways such as Arbor Day, Run for the Trees and Earth Day.

ATTACHMENTS:

- Urban Forestry Master Plan Timeline
- Draft Urban Forestry Management Plan
- Tree Inventory & Risk Assessment Report

Urban Forestry Master Plan Timeline

URBAN FORESTRY MANAGEMENT

Urban Forestry Master Plan Timeline

Date	Action
May-October 2012	Staff Development of Draft Plan
November 2012	Received Lippi Study
December 3, 2012	Overview of Draft Plan with City Commission
December 20, 2012	Review of Draft Plan with Tree Preservation Board
March 2013	Creation of sample street based on Lippi Study
June 2013	Individual Tree Tours with Commissioners
August 22, 2013	Review of revised draft plan with Tree Preservation Board. Preparation for Community Meeting.
September 30, 2013	Community Meeting UFMP
October 14, 2013	Adoption of UFMP by Commission
November 11 & 25, 2013	Revision to Code, if necessary

DRAFT
Urban Forestry Master Plan

URBAN FORESTRY MANAGEMENT

City of Winter Park










Urban Forest Management Plan

DRAFT

TABLE OF CONTENTS

This draft Urban Forest Management Plan has been developed and is recommended by the City of Winter Park Tree Team. Dru Dennison's efforts in writing and developing the initial drafts of the document are acknowledged. The Tree Team is made up by the following city personnel from the Forestry Division, Code Enforcement Division, Electric Utility Department, and Administration Department:

- Dru Dennison, Urban Forestry Manager/ Arborist
- Sylvia Hawkins, Chief of Code Enforcement
- John Holland, Parks and Recreation Director
- Alan Lee, Code Enforcement Officer/Arborist
- Lee Mackin, Chief of Forestry and Arborist
- Dave Mullholand, Electric Operations Manager and Arborist
- Jerry Warren, Electric Utility Director
- Michelle del Valle, Assistant City Manager

OUR TREES - YESTERDAY AND TODAY


Piney Woods

Long before Winter Park founders Oliver Chase and Loring Chapman stepped foot on land we now call Winter Park, our city was already home to its first trees – pines. Pines were so prevalent in this area during the 1800s that the main canals that currently join our lakes were built to ship logs to the city's first saw mill on Lake Virginia. Log transportation needs are long gone and now those canals serve us for our leisure boating needs between our chain of lakes.

As Winter Park began establishment in 1882 and officially incorporated into the "Town of Winter Park" in 1887, more and more northerners found refuge from the harsh winters and made Winter Park their home. The warm Florida climate was conducive to growing citrus. Slowly but surely our pine forest became prolific with citrus groves as a lucrative business for its northern settlers.


The Big Freeze

In December 1894, the town experienced "The Big Freeze" where temperatures dropped to 24 degrees. In February 1895, a second freeze hit at 17 degrees killing all of the crops of oranges and all the trees as well. It wasn't until 1911-1912 that the first prosperous orange crop reappeared in Winter Park.


Summerfield Road

Yesterday's pine and orange trees transitioned into today's oak trees. In the 50s and 60s, laurel oaks (quercus laurifolia) began sprouting throughout the town. Laurel oaks were wildly available at the nurseries, known to grow fast and bear attractive leaves, therefore providing the canopy we enjoy and treasure today.

In addition to The Big Freeze, another act of Mother Nature that forever changed our urban forest was the hurricanes of 2004. Over 8,000 trees were destroyed in those series of storms and Winter Park is still feeling the impact of that natural occurrence.

Even with the natural effects of Mother Nature and time, we are still able to enjoy the benefits of approximately 75,000 - 85,000 trees in our rights of way, parks and on private property, with the city's rights of way being the most visible and home to the thousands of laurel and live oaks (quercus virginiana) that beautifully line our city streets and neighborhoods.

A healthy population for trees and people should always include diversity in age and species. This Urban Forest Management Plan will help ensure the longevity, vitality, healthy growth and management of one of Winter Park's most treasured assets – its trees.

BENEFITS OF A HEALTHY URBAN FOREST

Before discussing an urban forest management plan, one must first understand what an urban forest is. An urban forest, as defined by "American Forests", is an ecosystem composed of trees and other vegetation that provide environmental, economic and social benefits. This includes street and yard trees, vegetation within parks and along public rights of way and waterways.

More than 80 percent of Americans live in an urban environment. In an urban forest many of those benefits of trees are directly related to humans, in fact, there are numerous studies that have proven trees provide economic, social, and environmental benefits to our daily lives. Urban trees are a vital part of a functioning ecosystem.

Trees provide the following benefits to an urban environment:

- Create shade and protection from weather
- Improve air quality by helping to filter pollution
- Provide areas for recreation and solace
- Protect water quality by filtering pollutants
- Absorbing stormwater runoff
- Moderate local climate by mitigating urban heat islands
- Reduce summer cooling and winter heating costs, thereby reducing energy demands from buildings
- Reduce the carbon footprint
- Provide food/habitat for wildlife
- Buffer noise/wind/land use changes
- Increase real estate value
- Traffic calming
- Aid in crime reduction
- Increase economic activity
- Assist in healing processes by providing calmness and tranquility

Given the identified benefits of trees mentioned above, it is appropriate that a community put in place an urban forest management plan designed to protect and ensure a healthy and thriving urban forest.

WHAT IS AN URBAN FOREST MANAGEMENT PLAN?

The purpose of an urban forest management plan is to:

- provide a framework for ensuring that the trees and forests of the city are appropriately cared for according to community goals
- provide guidelines when making decisions about trees and the green infrastructure which contributes to the city ecosystem based upon scientific research and identified industry standards
- help improve and coordinate management of trees and tree canopy
- direct the practices for tree planting, removals, canopy development, utility line clearance, roadway and street sign clearance, and parks tree maintenance
- provide equitable forest benefits including recreation, education, improved human and environmental health, and monetary savings generated by maintaining a healthy tree canopy
- justify budget requirements to maintain and sustain a healthy urban forest now and for future generations

An urban forest management plan is a holistic approach to enhancing and managing the entire urban forest and the community in which we live. This document will change and evolve as environmental factors that affect the urban forest are identified, conditions changes, and research progresses. Much like the urban forest itself, this plan is a renewable resource.

OUR URBAN FOREST MANAGEMENT PLAN

MISSION

Strategically maintain Winter Park's urban forest through utilizing best management practices, and scientific research to maintain existing trees and replace and plant a variety of species over time to create a renewable and sustainable forest for today and future generations.

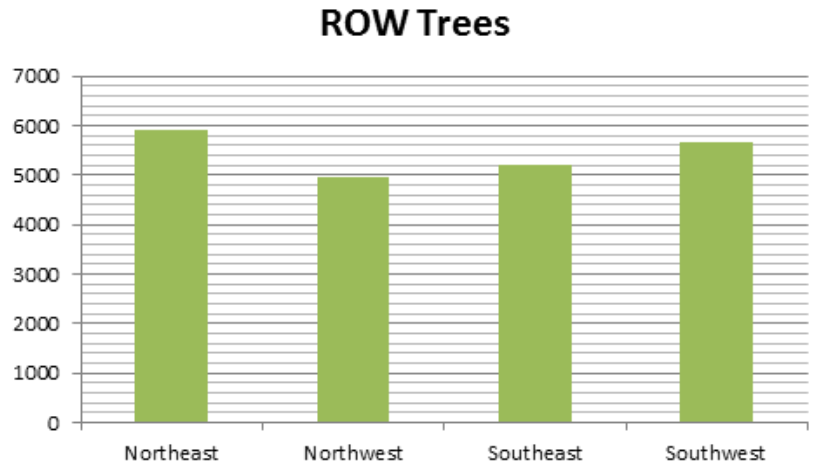
Key goals:

- Preserve and protect existing tree canopy
- Reduce risk, prevent injuries to people and damage to their property
- Mitigate tree hazards in public areas
- Enhance and restore forest quality through species and age diversity
- Maintain and plant trees to coexist with urban services
- Expand forested areas
- Create appropriate infrastructure areas to allow for sufficient space for mature trees to grow
- Provide community outreach and education
- Promote interdepartmental coordination on the care of city trees

OUR URBAN FOREST

In 2005, the city hired ArborPro, Inc., a full service urban forestry and software consulting company to perform an inventory of right of way (ROW) trees. The survey found:

- there are approximately 25,500 ROW trees
- ROW trees are fairly evenly dispersed in each quadrant
- condition of the trees within each quadrant is fairly consistent: reaching the end of useful life and are beginning to decline
- almost half of the ROW trees were two oak species:
    1. 29 percent laurel oak
    2. 20 percent live oak



Laurel oaks are the prominent trees located in our ROW. Laurel oaks have a life span of approximately 50-70 years depending upon site conditions (streets, pavement, sidewalks, etc.) and other environmental factors. The laurel oaks in Winter Park:

- are predominately between 20" to 50" diameter at breast height (DBH) - measured at 4 ½ feet above the ground
- are between 45-60 years of age (middle-aged to maturing/declining)

Based on the 2005 survey and an increasing demand of removal of dead/dying ROW trees, an additional study was requested during the summer of 2012 to:

- perform a risk assessment on a sample of 300 ROW trees, 75 trees per quadrant
- provide an assessment tool
- prescribe treatment for each tree in accordance with ANSI A300 standards and ISA Best Management Practices

The study was awarded to Mr. Chuck Lippi, Board Certified Master Arborist, president/owner of Advanced Tree Care, Inc. City arborists' agree the trees selected for risk assessment were consistent with the other trees in the ROW.

The tree assessments were conducted in accordance with:

- *ANSI A300 Standards on Tree Risk Assessment*
- *Best Management Practice on Tree Risk Assessment* as recommended by two leading arboricultural researchers: DR. Ed Gilman, University of Florida and Dr. Kim Coder, University of Georgia.

Each tree received:

- "Level 2 Basic Assessment" which includes a detailed visual inspection of the tree and its surroundings and a sound testing of the lower trunk and root flares with a rubber mallet.
- measurement on the Clark-Matheny rating system which identifies three characteristics:
    1. probability of failure
    2. size of the tree part that may fail
    3. target (person or property) that could be injured or damaged if the tree failed
    - A fourth characteristic, tree species, was added to Winter Park's rating model. Each tree identified in the study was then measured on the 14-point risk assessment and a specific treatment was prescribed.

As the city works toward building an inventory for purposes of prioritizing and planning work, each of the city's arborists will use the 14-point rating scale and categories to assess trees. *(See appendix for Mr. Lippi's full report.)*

The results of the study found:

- the tree population is reaching maturity
- the tree population is exhibiting signs of increased decay
- weak branch structure leads to leading to higher failure rates
- 45 percent of the trees in the sample contained extensive decay, which is much higher than most surveys in other communities.

Because our trees are in a declining and maturing state, leaving the decay and weak branch structure accelerates the demise of the tree and introduces risk to humans, therefore pruning is suggested.

RECOMMENDATIONS:

- Move towards a more routine pruning program.

THE IMPORTANCE OF DIVERSITY

The science of arboriculture and urban forestry has changed drastically since the City of Winter Park's urban forest canopy was originally established in the mid-1900s. Urban foresters were not aware of the potential detriment of a monoculture of species or the importance and benefits of age diversity. Urban Foresters have also learned that routine maintenance is essential to maintaining vigor and vitality in the development and enhancement of the urban forest.

While the United States Forest Service suggests cities should have no less than 40 percent canopy cover (private and public trees), our urban forest consists of 55 percent of tree canopy coverage. With a majority of trees being planted at the same time and roughly the same species (laurel and live oaks), our tree canopy is in a critical stage. Renewal and maintenance is necessary to preserve and expand its beauty and benefits to our community. In addition to maintaining the goal of at least 40 percent canopy cover, there are two key elements to preserving and enhancing the canopy: age diversity and species diversity.

Age Diversity

A healthy canopy is a lot like a healthy community, it benefits from trees of all ages just as a community benefits from having residents of all ages. Luckily, Winter Park has always placed high in importance the planting of new trees. Trees from both the ROW and private property contribute to the beauty of the canopy. The city provides giveaway trees and has offered many opportunities for residents and children to learn about planting trees through programs like the Arbor Day, Trees for Peace, Run for the Trees, and Earth Day. The city has also partnered with good neighbors, such as the Winter Park Live Oak Fund that helped replant over 700 ROW trees after the 2004 hurricanes. In addition, the city has aggressively replanted ROW trees in each of the four quadrants within the city between 2009-2012. All of these efforts have prepared us well to continue to build on establishing an evenly distributed age to the canopy.

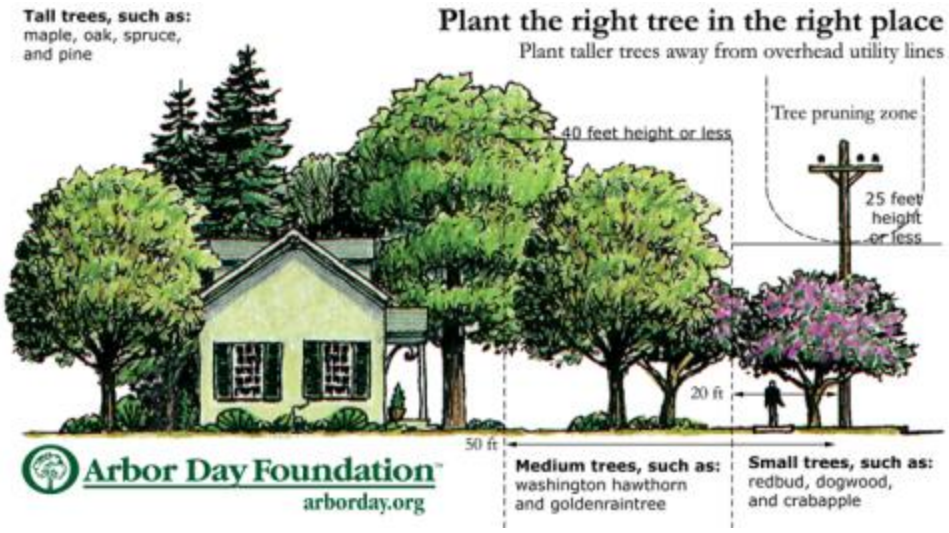
In addition to actively replacing trees on the city's ROW, the city maintains an ordinance 2895-12 that requires tree removals on private property be replanted. The ordinance was recently modified and requires the following:

- Removal of trees determined by the city to be dead, hazardous or beyond recovery requires replacement with one approved shade tree having a minimum caliper of 3"
- Removal of healthy trees having a DBH of at least 9" and less than 19" requires replacement with one approved shade tree having a minimum caliper of 3"
- Removal of healthy trees having a DBH of 19" or greater requires a replacement with two approved shad trees having a minimum caliper of 3"

If a balance between removals and replacements continues as the dying and declining trees are removed the city will move toward having a well age diversified urban forest within ten years.

RECOMMENDATIONS:

- Where possible, replant a shade tree near the place of a removal in the city ROW. If there is a conflict, such as a power line, sidewalk, etc. consider replanting an appropriately sized tree near the removal site "Right Tree, Right Place"
- Replant private trees in accordance with city Ordinance 2895-12



Species Diversity

Urban forests compete with many other human needs in a built environment, such as buildings, homes, sidewalks, roads, size of planting strip, and utility facilities. It is important to put "the right tree in the right place" or the tree will either fail to thrive or create a myriad of side-effects that will be costly and detrimental to human habitation. The United States Forest Service recommends the urban forest be comprised of mostly species native to the region focusing on age, size, and species diversity. United States Forest Service research has proven to avoid species monoculture, the urban forest should have a species composition of no one species comprising more than 10 percent of the population. Species diversity, wood type, wind resistance, and insect/disease resistance should be considered.

The potential for deforestation can be detrimental and in epidemic proportions in urban environments due to insect and disease infestations. Historically many cities have experienced deforestation at different levels. For example,

- Denver, Colo., was nearly deforested in 1948 due to Dutch elm disease
- The City of Winnepeg, Manitoba spends $3 million annually just to combat the deadly Dutch Elm Disease
- Emerald Ash Borer was the killer of millions of ash trees in Minnesota and Michigan

The City of Winter Park is not immune to these types of deforestations, in fact urban trees are more susceptible to disease than those in a natural, undisturbed environment. The following are examples of the most common diseases that can be a threat to the city's trees:

- **Hypoxylon Canker** is a secondary fungus that causes cankers and eventually death of oak and other hardwood trees. Relatively healthy trees are not invaded by the fungus; however the fungus is known to be present in many healthy trees and lies dormant in the inner bark. The hypoxylon fungus will readily infect the sapwood of a tree that has been damaged, stressed, or weakened. Hyxpoxylon is considered a weak pathogen in that it is not aggressive enough to invade healthy trees. Several trees are weakened and stressed within the City of Winter Park and many trees have been diagnosed with hypoxylon canker and removed. There is no known control or cure for the disease.

- **Oak Wilt** is yet another disease that threatens many areas of the country by killing oak trees. It was identified in the early 1940's and has been verified in 24 states. Oak wilt is killing oak trees, including live oaks at an epidemic rate in central Texas and occurs in South Carolina. Oak wilt is caused by a fungal pathogen which invades the water conducting tissues. It is a potential future threat to Florida, but to date the disease has not been identified in the state. According to the University of Florida there is great concern regarding oak wilt since live oak, laurel oak, shumard oak, and willow oak are high risk species. All of these trees exist in the City of Winter Park and comprise over 50 percent of our species.

- **Sudden Oak Death** has recently been introduced and is capable of causing symptoms from leaf spots, to bleeding cankers, to plant death. It is at this time restricted to coastal areas, but has the potential to spread. Several host species can be attacked by sudden oak death. In 2002 sudden oak death had 29 host species; in 2008 there were 45 host species noted and as of 2012 up to 100 species could be affected. The fungus can spread by movement of infected host material, infested soil, irrigation water, and wind-blown rain. Because this is a new pathogen, the best option in controlling spread of this disease is preventing the introduction and establishment of the pathogen in new areas. Currently only foliar dieback disease has occurred in Florida and no oaks have died from sudden oak death in Florida.

- **Laurel Wilt** has caused serious damage to red bay, avocado, and other trees in the laurel family in Florida as well as other southern states. Laurel wilt continues to expand at a rapid pace in Florida. This disease was first detected in the United States in 2002 and in Florida in 2005. In July of 2011, Laurel wilt had been identified in only a few counties, but today it is a widespread killer of the native red bay.

(See appendix for additional discussion regarding tree diseases and insect infestations associated with species monocultures)

In urban areas, foresters must choose to diversify rather than chancing devastation and deforestation as a result of a species monoculture. Maintaining healthy trees and planting different species are key aspects of preventing forest devastation.

EXAMPLES OF ALTERNATIVE SPECIES TO ESTABLISH A DIVERSE CANOPY*

**This is not a complete list, only examples of alternative species*

Canopy Shade Trees	Medium Trees	Understory Trees
Trees with a mature height of 50 -70 + feet that cannot be planted under overhead electric utility facilities and must have a minimum of 6' planting strip.	Trees with a mature height at 30-45 feet and can be managed if planted near overhead electric utility facilities and must have a minimum of 4' planting strip.	Trees with a mature height of 15 to 25 feet tall that can be maintained under overhead electric utility facilities and must have a minimum of a 3'planting strip.
• Cultivars of live oak Cathedral Highrise Parkside Millennium • Nuttall Oak • Shumard Oak • Sand Live Oak • Willow Oak • Bald Cypress • Ash • Red Maple & cultivars • Sweetgum • Southern Magnolia • Winged Elm • Sycamore • Tulip Poplar • Swamp Chestnut Oak	• Riverbirch (Duraheat) • Sweet Bay Magnolia • Chinese Elm (Drake, Allee) • Little Gem Magnolia • Southern red cedar • Bracken's Brown Beauty Magnolia • DD Blanchard Magnolia • Redbud • East Palatka Holly • Savannah Holly	• Chickasaw Plum • Nellie Stevens Holly • Eagleston Holly • Dahoon Holly • Pear (cultivars) • Cherry (cultivars) • Crepe Myrtle • Japanese Blueberry • Flowering Dogwood • Golden Trumpet • Fringe Tree • Loquat

RECOMMENDATIONS:

- Begin planting a wider variety of ROW trees to include no more than ____ percent of a single species, while emphasizing maintaining a canopy of at least 40 percent shade.
- Expand the variety of oak planted within the city. Plant no more than ____ percent of a single species and no more than ___ percent oak each year.
- Through improved educational programs, encourage wide variety of plantings on private property.
- Plant a wide variety of trees in city-owned park land. Provide educational signage on unique trees.
- Select Arbor Day and other tree giveaways based on species that are underrepresented.
- Offer special planting opportunities for residents and businesses willing to diversify.

MAINTAINING TREES IN THE RIGHTS OF WAY

Right of way trees (ROW) are trees planted close to the road, generally between the sidewalk and the road on city property. According to the existing city code 58-296, the adjacent property owner is responsible for the maintenance and care of the tree. This portion of the ordinance has remained in place for many years, while other sections have been modified.

Two factors, the 2004 hurricanes and the acquisition of the electric utility system, encouraged a more thorough evaluation of pruning and management of its trees.

Prior to the 2004 hurricanes, the city's forestry crews were able to supplement the work of residents by courtesy pruning to:

- lift the canopy
- clear for line-of-sight
- dead wooding trees
- remove hazardous trees

While the urban forest was beginning to see signs of aging, the hurricanes caused much damage and increased the rate of aging and decay for many trees.

The damage from the hurricanes, combined with an increased work load and multiple years of non-growth budgets, limited the city's forestry crews ability to continue to provide pruning of ROW trees, as a courtesy to the residents, causing further deterioration. Forestry staff has been primarily focused on hazard mitigation and dead tree removal. Because the city provided pruning, as a courtesy for the residents, for many years in the past and the city has planted many trees within the ROW in recent years, many residents are unclear about their responsibility to maintain trees adjacent to their property. According to current code, the adjacent property owner is responsible for the maintenance and care of the tree.

In addition, after acquiring the electric utility system, the city became hands-on on the day-to-day management of its tree trimming especially around power lines. Recently, the city has enhanced its arborists' knowledge bank and team to better understand and manage its urban forest. It can now use the combined experience and education of staff to address the appropriate prescriptions for its maturing trees.

Removal of dead/diseased trees

Trees throughout the ROW and in city parks and facilities are assessed for risk and prioritized for removal. Currently, trees are identified for evaluation by concerned residents, business owners, or city employees. The trees are being assessed and prioritized based on the scientific criteria previously identified. A value is identified for each tree ranging from highest risk to lowest risk. The trees with the highest risk rating are prioritized to the top of the removal list.

The scientific approach to evaluating the trees helps determine the value of pruning vs. removal. It is often better for the canopy, budget and overall quality of the urban forest to remove and replant verses pruning, then later removing. Removal of diseased trees is sometimes recommended rather than pruning to prevent spread of the disease and fight the inevitable. In addition, pruning is recommended due to budget restrictions and aesthetic purposes.

Pruning and dead wooding

As previously mentioned, city code calls for the adjacent property owner to maintain the ROW trees, however, currently the city will remove dangerous or potentially hazardous limbs from trees in the ROW. The remainder of the tree is left unpruned and is the responsibility of the adjacent property owner to prune and maintain.

There are several benefits to the city potentially taking responsibility for ROW tree maintenance:

- Consistency in treatment and maintenance of the trees would be accomplished by establishing a maintenance cycle and a pruning program consistent with ANSI A300 and ISA Best Management Practices
- Improve the health and longevity of the trees and reduce potential hazards
- Implementation of a pruning policy for small trees. Routinely pruning a small tree will result in the following:
    - correct structural problems
    - reduce/eliminate co-dominant leaders, unbalanced crowns, rubbing/crossing branches
    - remove dead branches
    - correct growth patterns which have the potential to obstruct line of sight, interfere with overhead electric utilities, or even buildings and other structures
    - maintenance of trees conducted under supervision of certified arborists

Maintenance of ROW trees is no small task and certainly comes with significant costs. While budget will be discussed in a later section, it is important to note that the city's current forestry budget does not include funding for maintenance of ROW trees.

RECOMMENDATIONS:

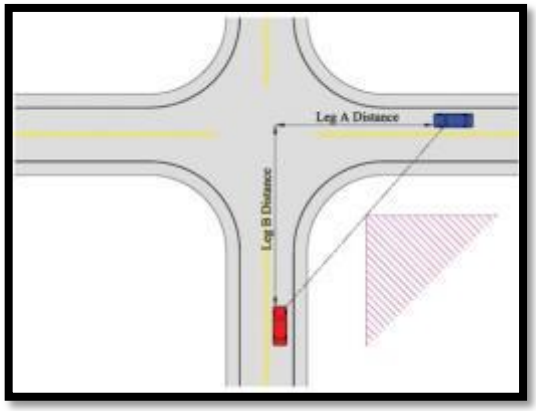
- Continue to prune and remove trees from ROW as necessary to minimize potential hazards
- Always prune according to ANSI A300 and ISA Best Management Practices
- Consider shifting responsibility of ROW tree maintenance to city, provided a funding source can be established.
- Begin pruning small trees to establish proper growth patterns.

CLEARING VEGETATION *(tree limbs, branches, leaves)*

In addition to standard ROW maintenance, it is necessary in an urban environment to prune the trees to coexist with modern day conveniences such as electric lines and roadways. To protect the trees as much as possible and to minimize the impact on the trees health related to the pruning, all tress are pruned according to ISA Best Management Practices and ANSI A300 Standards. Each tree is different, therefore, each tree requires a different prescription as to how it will be pruned.

Street Tree Clearance

In order for fire trucks, garbage trucks and general delivery trucks to safely pass through the streets of Winter Park, limb heights are required to be above 13'6" and for a clear triangular line of sight (see graphic to the right). Similarly, the city code also mandates a clearance of 8' above sidewalks. In both cases, ISA Best Management Practices and ANSI A300 Standards are utilized to properly prune the tree. As a result, there will be situations where the tree will be pruned closely to the standards set and at other times it may require removing the limb at the trunk. Each tree will be handled individually and the minimum cut necessary will be made to provide a safe clearance while utilizing proper arboricultural pruning methods.



Triangular line of sight

Utility Line Clearance

The city has a municipal owned electric utility where overhead power lines are forced to coexist with lush tree canopies. A standard function of an above ground utility operation is to clear conflicts within a safe distance of the utility lines in order to keep utility employees and people safe, minimize interruption of service and equipment failures as a result of limb or small animal conflict. Most electric utility companies (investor- or municipal-owned) in the United States including Florida operate under specific clearance guidelines of 10 feet.

Winter Park does not prune based strictly on a given distance from the electric equipment, but rather considers the individual tree and equipment that are in conflict and makes the minimum cut necessary and prunes in accordance with ANSI A300 Standards and ISA Best Management Practices. Decisions are also based on safety of the utility workers and residents, and the potential for power failure. Electric line clearance is currently on an approximately three year schedule (depending on species).

In addition to pruning to eliminate conflict, the Electric Utility Department recently proposed a program to the City Commission to underground its overhead primary (7,200 volts) wires within a 12-20 year period.

Placing electric overhead wires underground will eliminate conflicts between electric facilities and trees and will significantly reduce and ultimately eliminate the electric system's need to prune trees. Seventy five undergrounding projects have been identified and prioritized based on the following quantitative criteria:

Criteria	Point System			
Tree density per mile of primary conductor	0-40 points based on ranking of tree density			
Visibility of overhead electric facilities	arterial roads *20 points*	collector roads *15 points*	other local roads *10 points*	rear lots *0 points*
Type of construction	3-phase mainline feeder *20 points*	3-phase non-mainline feeder *10 points*	2-phase lateral *5 points*	Single-phase lateral *2 points*
Electric System reliability experience	Poor reliability *20 points*	Average reliability *10 points*		Good reliability *0 points*

Using the above criteria each line segment that makes up a project is evaluated and is weighted by length and the points are summarized by project. The project with the most points is ranked number one in priority for undergrounding. The application of the above criteria results in assigning the highest priority for undergrounding to the overhead line segments with the most tree conflicts, serving the most customers (construction type), with the most visibility, and experiencing the worst reliability. The full list is available on the city's website cityofwinterpark.org > Departments > Electric Utility > Electric Undergrounding Priority List

During the interim period, i.e. until undergrounding is complete, the electric department will adhere to the following standards with regard to pruning trees in conflict with overhead electric facilities:

1. On a tree by tree basis, prune trees to the minimum clearance necessary for safe and reliable operation of the electric system, while maintaining proper pruning techniques as identified by ANSI A300 Standards and ISA Best Management Practices" Utility Pruning of Trees" ISA pruning standards. If a line is scheduled for undergrounding in less than 5 years, prune as follows:
    a. If a line is scheduled for undergrounding in less than 3 years, line clearance pruning will be carried out only if absolutely required.
    b. Coordinate line clearance pruning such that lines that are scheduled for undergrounding in the 3-5 year timeframe be scheduled for only one pruning.
    c. Coordinate line clearance pruning such that lines that are scheduled for undergrounding in the 5-8 year timeframe be scheduled for only two prunings,

d. Electric lines that are scheduled for underground after 8 years will be pruned approximately every 3 years to achieve electric system reliability and in accordance with ANSI A300 Standards and ISA Best Management Practices.

2. In addition to line clearance pruning, the removal and replacement of declining trees will be coordinated with the undergrounding program.

RECOMMENDATIONS:

- Prune ROW Trees in accordance with city code 59-298, ANSI A300 and ISA Best Management Practices for street clearance to include lifting the canopy on the roadway and sidewalks and triangular line of site clearance for traffic signs and devices.
- Prune trees in conflict with electric utility line in accordance with City of Winter Park Utility Vegetation Management Guidelines, ANSI A300 and ISA Best Management Practices
- Continue to underground electric utility lines in accordance with the Undergrounding Master Plan.

CITY PARKS AND FACILITIES

This section is to come at a later date.

FUNDING

Historically, arboriculture functions have been separated into three sections:

1. Forestry Division
2. Code Enforcement Division
3. Electric Utility Department

Each division or department was responsible for their individual tasks, but there was little coordination among teams. In 2011, an internal tree team was created to begin developing strategies to manage the growing needs of the urban forest from a better coordinated approach. The team consisted of members from forestry, code enforcement, electric and administration. Many changes have been implemented as a result of the tree team's work, the most significant being the reorganization of the individual divisions to a single division and the development of the electric undergrounding master plan. From this report, policy decisions are expected and additional operating adjustments are also anticipated.

Development of a budget and work plan that supports the recommendations of this plan are critical to its success.

Budget

Below is a chart of city resources spent on the various arbor tasks. Funding for electric utility pruning comes from electric utility revenues while the forestry and code enforcement functions are funded with General Fund resources. On average, over the last five years, the city collectively has spent just over $1.5 million on tree care.

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Forestry Division	988,703.45	930,184.19	898,656.71	1,078,982.18	1,071,361.76	1,072,138.18	984,404.73	904,184.09	978,363.68	744,323.83
Code Enforcement					48,500.00	58,193.00	61,066.00	28,870.00	37,850.00	52,000.00
Electric Tree Maint.			133261.15*	605,065.43	605,744.28	559,327.84	533,075.85	549,302.57	521,941.81	558,320.47
			*Partial Year							
	988,703.45	930,184.19	898,656.71	1,684,047.61	1,725,606.04	1,689,659.02	1,578,546.58	1,482,356.66	1,538,155.49	1,354,644.30

Fees collected for private tree removals have been used to offset the cost of planting, education, and in 2012 and 2013, to assist with dead tree removal.

Summary of Activity for Tree Preservation Fund (TREEFD)					
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Beginning balance	**186,776.51**	**396,867.92**	**439,832.33**	**493,489.60**	**499,246.54**
Revenues:					
Grant funds	133,950.31		18,000.00		
Tree removal compensation	148,106.00	71,059.38	44,799.75	53,933.50	(5,854.25)
Donations (mostly payments from residents wanting to upgrade the size of replacement tree)	7,332.57	5,470.00	25,825.00	1,442.25	125.00
	289,388.88	76,529.38	88,624.75	55,375.75	(5,729.25)
Expenses:					
Grounds maintenance	3,161.60				
Promotional activities		5,362.60		50.00	
General operating supplies	76,135.87	28,202.37	34,967.48	49,568.81	106,824.12
Transfer to General Fund for removal of dead trees					100,000.00
	79,297.47	33,564.97	34,967.48	49,618.81	206,824.12
Ending balance	**396,867.92**	**439,832.33**	**493,489.60**	**499,246.54**	**286,693.17**

Currently within the General Fund Forestry Division, the following services are provided:

- Planting and watering of new trees
- Tree evaluation/demand trimming
- Emergency tree work (both in-house and contracted)
- Parks and other city property tree care and maintenance
- Contracted ROW - dead tree removal, street tree clearance
- Special projects (holiday decorations, etc.) and educational opportunities (Arbor Day, Trees for Peace, etc.)

To consider the additional costs associated with full maintenance for the ROW trees, the Tree Risk Assessment study performed by Mr. Lippi, was used to extrapolate the findings of that report over the estimated entire ROW canopy of approximately 25,000 trees. His findings were specific to laurel oak, which represent approximately 29 percent of the canopy.

To identify the cost for the remainder of the ROW maintenance, costs were reduced by 15 percent for live oaks (20 percent of the species) and 50 percent for other remaining species (51 percent of the species).

	ROW Tree Removal				
	Priority 1	Priority 2	Priority 3	Estimated Total	
ROW Maintenance Laurel Oak (29%)	73,000	299,000	353,000	$ 725,000	
ROW Maintenance Live Oak (20%)	42,000	174,000	205,000	$ 421,000	
ROW Maintenance All Other (51%)	63,000	260,000	307,000	$ 630,000	
	$ 178,000	$ 733,000	$ 865,000	$ 1,776,000	
	ROW Tree Pruning				
	Priority 1	Priority 2	Large Tree	Small Tree	Estimated Total
ROW Maintenance Laurel Oak (29%)	267,000	467,000	1,261,000	62,000	$ 2,057,000
ROW Maintenance Live Oak (20%)	155,000	271,000	732,000	36,000	$ 1,194,000
ROW Maintenance All Other (51%)	232,000	407,000	1,098,000	54,000	$ 1,791,000
	$ 654,000	$ 1,145,000	$ 3,091,000	$ 152,000	$ 5,042,000

(See appendix for ROW tree removal & pruning priority levels)

The total costs to complete a full cycle of maintenance of the ROW trees, based on their current condition, and is estimated at just over $6.8 million. Below are three potential options while there are several options that could be considered:

- Continue operating with existing resources
    - Hypothetically, this would equate to a 24-year pruning cycle, however, to actually complete the pruning cycle would be difficult because high priorities would continue to dictate how the budget is spent.

- Enforce the existing code
    - In this scenario residents would be forced to maintain the trees more aggressively. Any work not completed by the residents would be completed by the city and a lien would be placed on the property (similar to the lot clean up procedure).
- Include ROW tree maintenance as standard city services
    - This would require additional funding and resources.

RECOMMENDATIONS:

Staff recommends including ROW tree maintenance as a standard city service.

- Include small tree maintenance as part of in-house staff assignments
- Continue to seek operational efficiencies
- Re-evaluate plan after first pruning cycle is complete.

CONCLUSION

From the very first day our city founders stepped foot on Winter Park land, this community has always valued its trees and its urban forest. The Urban Forest Management Plan (UFMP) has been created to chart a future for a healthy urban forest and to assist members of the community to keep it healthy and thriving for years to come. The UFMP, like the urban forest, is as a living document that will continue to grow and adapt to the community's ever-changing needs.

The protection of the city's natural resources through the management of the urban forest allows its natural functions of recharging ground water, protecting streams, reducing heat islands, providing shade and wildlife habitat, and sequestering carbon and other pollutants, to flourish. The UFMP ensures the priority and importance of the safety of the city's residents and its tree canopy's green infrastructure.

Winter Park was established 1882 and now after 130 years of transformation and growth, the City of Winter Park's urban forest requires the attention of its community to properly and strategically restore, revitalize and enhance it to its maximum potential.

City staff and the citizens of our community can use this UFMP to accomplish its mission to "strategically maintain Winter Park's urban forest through utilizing best management practices, and scientific research to maintain existing trees and replace and plant a variety of species over time to create a renewable and sustainable forest for today and future generations."

APPENDIX

ADDITIONAL TREE DISEASES AND INSECT INFESTATION EXAMPLES

- **Chestnut Blight** defoliated much of the northeastern United States in the early 1900's by the infestation and attack on the American chestnut. The American chestnut comprised nearly 50% of the eastern hardwood forest. Many foresters believed that the American chestnut was the perfect tree. It was used for lumber, source of food for humans and wildlife, and furniture to name a few. It was first observed in 1904 in a New York zoo; and by 1940 the American chestnut had been destroyed as a commercial species. The fungus spread up to 50 miles a year wiping out American chestnuts in its native range. The American chestnut still sprouts from old stumps, but it is short lived as the disease attacks before it can become mature. It will be several hundred years before the American chestnut could thrive again.

- **Dutch Elm Disease (DED)** was first found in the United States in the 1930's in Ohio. It was a major epidemic from the 1930's to 1960's killing hundreds of thousands of elms. New Haven "The Elm City" became nearly treeless, the disease continued to spread reaching Detroit in 1950, Chicago in 1960, and Minneapolis by 1970. Denver was practically deforested in 1948 due to Dutch elm disease that attacked American elms. Denver, much like the City of Winter Park wanted a beautiful, uniform tree canopy quickly and started aggressively planting American Elms in 1904. The American elm was the predominant shade tree of choice throughout the Midwest. It was planted in yards, along streets, and in parks reaching from New England west to Colorado and north to Canada. Minnesota had about 140 million elms by 1950. Dutch elm disease has spread over 50% of the American elm population and has been reported in all states except the desert southwest. The largest surviving urban forest of elm trees in North America is believed to be in the city of Winnipeg, Manitoba where close to 200,000 elms remain. The City of Winnipeg spends $3 million annually to aggressively combat the disease. They continue to lose 1500-4000 elms per year to Dutch elm disease. Minnesota lost 8,000 diseased elms in 2004 and 3800 in 2003. The American elms that were lost thirty years ago were replanted with ash, honey locust, linden, and maples. What we have found is that these trees often times have problems too.

- **The Bronze Birch Borer** has negatively affected the urban landscape and forests by attacking all native and introduced birch species including white birch and river birch especially in the Northeastern United States, Midwest, and Canada. Records from the late 1800's describe widespread damage. Today the bronze birch borer often contributes to mortality of woodland birch during severe drought or other stress. Silvicultural (silviculture is the practice of managing the establishment of growth, composition, health, and quality forest to meet diverse needs and values) practices that increase stand health and vigor should reduce bronze birch borer attacks, as is the case with most insect/disease infestations.

- More recently the **Emerald Ash Borer** has adversely impacted many ash trees in cities in the Midwest including Minneapolis, MN. Minneapolis has lost several thousand ash trees due to the Emerald ash borer. Michigan replanted ash after losing elms in the 1960's. Now, Michigan has lost 7 million ash trees to the Emerald ash borer.

ROW TREE REMOVAL & PRUNING PRIORITY LEVELS

Trees that were marked for some form of maintenance received one of the following descriptive classifications. All work should follow ANSI A300 Pruning Standards 6:

ROW tree removal priority level

Priority 1 Removal Trees designated for removal have defects that cannot be cost-effectively or practically treated. The majorities of the trees in this category have a large percentage of dead crowns, decay and/or pose an elevated level or risk for failure. Any hazards that could be seen as potential dangers to persons or property and seen as potential liabilities to the client would be in this category. Large dead and dying trees that are high liability risks are included in this category. These trees are the first ones that should be removed.

Priority 2 Removal Trees that should be removed but do not pose a liability as great as the first priority will be identified here. This category would need attention as soon as "Priority 1" trees are removed and "Priority 1 Prune" is done.

Priority 3 Removal Trees that should be removed, but pose minimal liability to persons or property, will be identified in this category.

ROW tree pruning priority level

Priority 1 Prune Trees that require priority one pruning are recommended for trimming to remove hazardous deadwood, hangers, or broken branches. These trees have broken or hanging limbs, hazardous deadwood, and dead, dying, or diseased limbs or leaders greater than four inches in diameter.

Priority 2 Prune These trees have dead, dying, diseased, or weakened branches between two and four inches in diameter and are potential safety hazards.

Large Tree Routine Prune These trees require routine pruning to correct structural problems, shorten sprawling branches with excessive end weight, remove dead branches or vines, or correct growth patterns which would eventually obstruct traffic or interfere with utility wires or buildings. End weight reduction pruning is considered part of "Routine" pruning. Trees in this category are large enough to require bucket truck access or manual climbing.

Small Tree Routine Prune These trees require routine pruning to correct structural problems, remove dead branches or vines, or correct growth patterns which would

eventually obstruct traffic or interfere with utility wires or buildings. Trees in this category are small enough to use a ladder or pole saw.

Training Prune These are generally smaller trees that can benefit from early structural pruning that will improve the structure by reducing or eliminating co-dominant leaders, unbalanced crowns and other structural problems.

RISK ASSESSMENT FORM

Address:

Tree #:

Species: **Size:**

Health condition (decay fungi, sparse foliage, declining)
excellent, good, fair, poor, dead

Structural Condition (co-dominant leaders, dead branches, decay/cavities)
excellent, good, fair, poor

1. **Probability of failure** of the tree or part of the tree
   (1=low probability, 2=moderate probability, 3=moderate to high probability, 4=high probability)

2. **Size of the tree part** that may fail
   (1=smaller branch, 2=large branch, 3=entire tree)

3. **Target** (person or property) that could be injured or damaged if the tree failed
   (1=low target value, 2=moderately occupied or valued target, 3=moderate to high target value, 4=high target value such as busy street, occupied home, playground)

4. **Tree species**
   (1=strong, decay and wind resistant species such as live oak, 2=moderate decay and wind resistance such as sweet gum, 3=weaker, decay prone species such a laurel oak)

Hazard Score:

Work Priority Rating:

Urgency/Overhead Utility/Notes:

Date: **Name:**

Tree Inventory & Risk Assessment Report

URBAN FORESTRY MANAGEMENT

City of Winter Park
Tree Inventory and
Risk Assessment Report

by
Chuck Lippi

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ASCA Registered Consulting Arborist #443

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Introduction

Summary

A tree inventory and risk assessment was made of a sample of 300 street trees in Winter Park, Florida using techniques and methods described in ANSI A300 Standards[1] and Best Management Practices: Tree Risk Assessment[2]. Because of the predominance of the relatively short lived laurel oaks (*Quercus laurifolia*) in our sample areas, tree population is reaching its mature age and the accompanying problems of increased decay and weak branch structure. More maintenance directed at trees with a higher potential for failure should be implemented.

Background

We were asked to provide a proposal to do a risk assessment of a sample of 300 trees in Winter Park. We provided a proposal on May 18, 2012 that was approved on July 18, 2012. The survey and risk assessment was performed on September 4 and 5, 2012.

Assignment

Our assignment was to:

- Do a risk assessment of 300 street trees
- Recommend an appropriate course of action for maintenance and remediation

Limits of the Assignment

We visually inspected each tree for the inventory and assessment. We did not survey any broadleaf or conifer trees under 8 inches in diameter or any palm trees.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees, below ground or not clearly visible from the vantage point on the ground. Arborists cannot guarantee that a tree will be healthy, safe or adequately protected under all circumstances or for a specified period of time. Likewise, remedial, protective and mitigating treatments and recommendations cannot be guaranteed.

Purpose and Use of the Report

This report is prepared for the City of Winter Park and is public record. The main purpose of the tree inventory is risk assessment. A tree inventory identifies apparent tree problems and provides the starting point for a long-term management plan, which allows for effective use of tree maintenance funds, and allows for more accurate budget projections.This tree inventory and assessment provides information on the species, size and condition of the street trees in the City of Winter Park. If this type of risk assessment is continued, an additional benefit is the City is on record as having risk assessment procedures in place and an on-going risk assessment program following national standards.

Assumptions

The tree survey was done on September 4 and 5, 2012. Our observations and conclusions are as of that period. A severe storm or other environmental factors can change the observations and maintenance recommendations.

Testing and Analysis

The Risk Assessment was done in accordance with ***ANSI A300 Standards on Tree Risk Assessment*** [3] and the companion publication ***Best Management Practices, Tree Risk Assessment***.,[4] Tree structure and health recommendations follow procedures and techniques of two of the country's leading arboricultural researchers: Dr. Ed Gilman, professor of environmental horticulture at the University of Florida and Dr. Kim Coder, professor at the University of Georgia.

On each tree evaluated we performed a **Level 2 Basic Assessment**, which is a detailed visual inspection of a tree and its surrounding site. The **Level 2 Assessmen**t includes a 360-degree visual inspection from ground level on each tree and sound testing of the lower trunk and root flares with a rubber mallet to listen for tonal variations that may indicate internal hollows or decay. When there is sufficient evidence gathered under a Level 2 Assessment for additional evaluation of a tree found to have significant structural defects such as visible cavities, decay or indications of possible decay from a sounding test, we recommend a **Level 3 Advanced Assessment** with a Resistograph to determine the extent of internal decay and strength loss. A Resistograph is a drilling device that measures and graphs wood strength as the narrow ⅛-inch drill bit passes through the different layers of solid and decayed wood. Level 3 Advanced

Assessment is not part of the scope of this assignment and can be arranged in a separate contract.

We identified the species of each tree, measured the diameter and added a uniquely numbered black nylon tag secured to the tree with a 3-inch stainless steel nail (Figure 1). Each nail was driven only partially into the tree to allow room for tree growth in diameter, which pushes the tag outward along the nail toward the nail head as the tree grows in girth. Generally, we attach the tags to trees at a height of about 7 to 8 feet out of reach of the curious and facing away from the flow of traffic whenever possible.

Data Collection

Both empirical data as well as subjective data was gathered on each tree. Data was collected on HanDBase, a data collection database application used on our handheld smartphones.

Empirical data included:
1. tree tag number
2. tree species
3. tree diameter (DBH)
4. location

The subjective data included:
1. health condition (excellent, good, fair, poor, dead)
2. structural condition (excellent, good, fair, poor)
3. structural problems such as codominant leaders, dead branches, decay/ cavities, health problems such as decay fungi, sparse foliage, declining
4. maintenance recommendations such as pruning, dead branch removal and other work
5. risk assessment rating (see below)

Risk Assessment Rating System

The risk rating score is a measure of relative tree health and structural condition on the tree populations found along the city's right-of-way. We rated each tree evaluated according to a risk assessment rating system developed by consulting arborists Dr. James Clark and Dr. Nelda Matheny. The Clark-Matheny rating system applies a score for three tree characteristics (items 1 through 3 below). We added the forth category, tree species.

1. **Probability of failure** of the tree or part of the tree (1=low probability, 2=moderate probability, 3=moderate to high probability, 4=high probability)
2. **Size of the tree part** that may fail (1-smaller branch, 2=large branch, 3=entire tree)
3. **Target** (person or property) that could be injured or damaged if the tree failed (low target value, 2=moderately occupied or valued target, 3=moderate to high target value, 4=high target value such as busy street, occupied home, playground)
4. **Tree species** (1=strong, decay and wind resistant species such as live oak, 2=moderate decay and wind resistance such as sweet gum, 3=weaker, decay prone species such a laurel oak)

Figure 1 For identification purposes tags were attached to each tree at a height of about 7 to 8 feet above the ground.

Different tree species vary in their strength, wind resistance, tolerance of construction damage (fill soil, cutting roots, soil compaction), life span and susceptibility to decay or other pests. In our opinion, tree species will affect how trees respond to urban landscape stresses and should be considered as part of the tree risk assessment. Tree species were rated on a 3-point scale with a “1” rating given to a long-lived, strong tree such as a live oak . A “2” rating was given to trees with moderate lifespans and strength such as a sweetgum (*Liquidambar styraciflua*). A rating of “3” rating was given to trees with relatively short life spans and generally poor strength such as laurel oaks (*Quercus laurifolia*).

Trees were rated in each category and the sum of the four categories represents the Hazard Score. The higher score means a higher risk for that category. The highest risk tree could attain a hazard rating of 14. The lowest risk tree could have a hazard rating of 4. Trees receiving a score in the mid-range, 6 to 8 may or may not require maintenance depending on budget considerations and available resources. Trees with a rating between 9 to 14 should be mitigated, in our opinion, with greater urgency given to trees with higher scores in this range.

According to Clark and Matheny.[5] “Thus hazard ratings cannot strictly define a numerical line for action between either removal and retention or treatment and no treatment. This must be an administrative decision, one made by owner and manager. In municipal situations, where an agency might manage a very large number of trees, there may be practical limits to the amount of work that can be undertaken and only the most severe and significant hazards may be addressed. Some level of risk will always be present when people live among trees. The decision of how much risk is tolerable remains with the owner and manager.”

Pruning Categories

Trees that were marked for some form of maintenance received one of the following descriptive classifications. All work should follow ANSI A300 Pruning Standards[6]:

- ***Priority 1 Removal*** Trees designated for removal have defects that cannot be cost-effectively or practically treated. The majority of the trees in this category have a large percentage of dead crown, decay and/or pose an elevated level or risk for failure. Any hazards that could be seen as potential dangers to persons or property and seen as potential liabilities to the client would be in this category. Large dead and dying trees that are high liability risks are included in this category. These trees are the first ones that should be removed.
- ***Priority 2 Removal*** Trees that should be removed but do not pose a liability as great as the first priority will be identified here. This category would need attention as soon as “Priority 1” trees are removed and “Priority 1 Prune” is done.
- ***Priority 3 Removal*** Trees that should be removed, but pose minimal liability to persons or property, will be identified in this category.
- ***Priority 1 Prune*** Trees that require priority one pruning are recommended for trimming to remove hazardous deadwood, hangers, or broken branches. These trees have broken or hanging limbs, hazardous deadwood, and dead, dying, or diseased limbs or leaders greater than four inches in diameter.
- ***Priority 2 Prune*** These trees have dead, dying, diseased, or weakened branches between two and four inches in diameter and are potential safety hazards.
- ***Large Tree Routine Prune*** These trees require routine pruning to correct structural problems, shorten sprawling branches with excessive end weight, remove dead branches or vines, or correct growth patterns which would eventually obstruct traffic or interfere with utility wires or buildings. End weight reduction pruning is considered part of “Routine” pruning. Trees in this category are large enough to require bucket truck access or manual climbing.
- ***Small Tree Routine Prune*** These trees require routine pruning to correct structural problems, remove dead branches or vines, or correct growth patterns which would eventually obstruct traffic or interfere with utility wires or buildings. Trees in this category are small enough to use a ladder or pole saw.
- ***Training Prune*** These are generally smaller trees that can benefit from early structural pruning that will improve the structure by reducing or eliminating codominant leaders, unbalanced crowns and other structural problems.

Observations

Tree Species Distribution

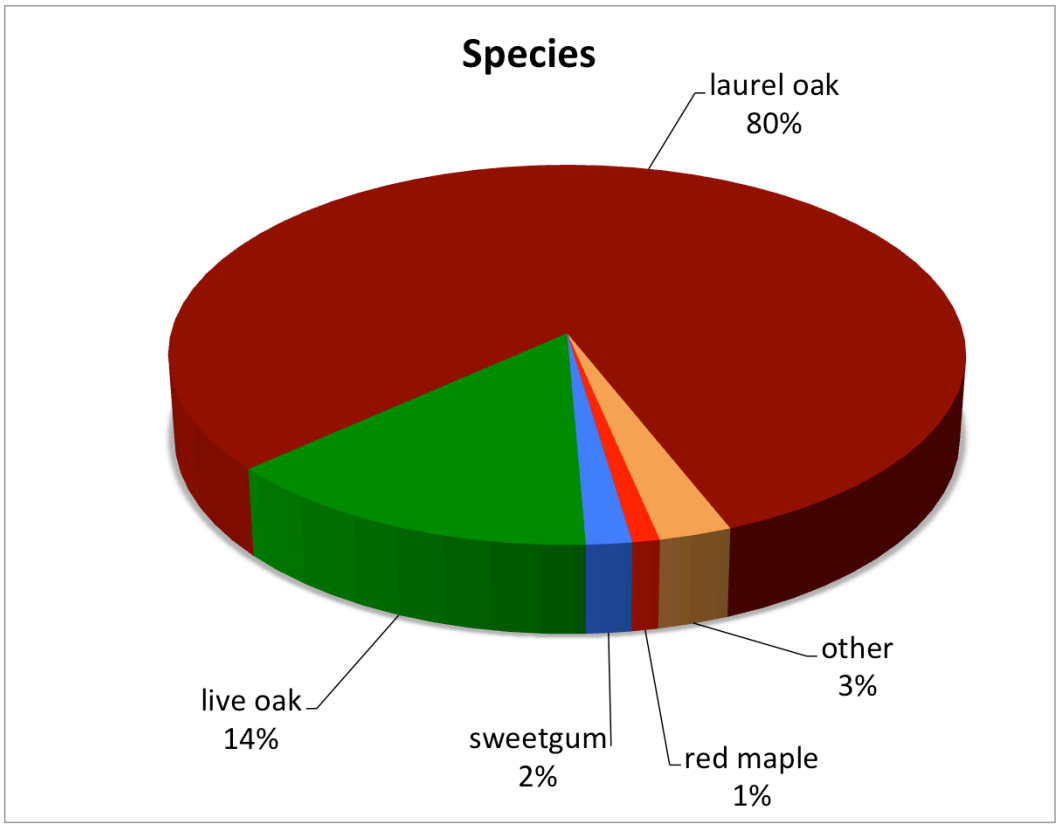

Figure 2

There were 300 trees evaluated in this inventory/risk assessment. Nine species of trees were found in the areas surveyed. Figure 2 illustrates the distribution of the different tree species. Laurel oaks were by far the predominant species with 242 trees followed by live oaks with 42 trees. There were five sweetgum and three red maple (*Acer rubrum*). The "other" group in Figure 2 consists of two camphor trees (*Cinnamomum camphora*), two slash pine (*Pinus elliottii*), two hickory trees (*Carya glabra*), one Chinese tallow tree (*Sapium sebiferum*) and one water oak (*Quercus nigra*).

General Tree Species Characteristics

Laurel Oaks A commonly found street tree and park tree is the laurel oak. Dr. Ed Gilman, Environmental Horticulture Professor at the University of Florida and one of the country's leading arboriculture researchers, describes the tree, "Laurel oaks have a life span of 50 to 70 years. Tree trunks and large branches often hollow from decay and wood rot. The smallest trunk injury or improper pruning cut can result in columns of decay inside the trunk which are 10, 20 or more feet long." Gilman goes on to say, "It (the laurel oak) grows well as a street tree and will serve the community well, but hollows with age as it approaches 50 years old."[7]

Dr. Mary Duryea, Associate Dean for Research and Forestry Professor at the Institute of Food and Agricultural Sciences of the University of Florida, has been studying hurricane damage on the trees for the past 20 years. Dr. Duryea has made lists of the trees she has found to have the lowest wind resistance and the highest wind resistance. The live oak is on her list of the trees with the highest wind resistance. The laurel oak on the contrary is listed a having medium-low to low wind resistance. The wind-resistance list has subsequently been incorporated in several University of Florida Extension Service Publications.[8, 9]

Pamela Crawford, a landscape architect who studied storm damage in the fall of 2004 following the multiple hurricanes, wrote in her book ***Stormscaping: Landscaping to Minimize Wind Damage in Florida,*** "We had more reports of laurel oaks down than any other tree in central and north Florida. If you have one of these within falling distance of your house, remove it, especially if it is an older tree. Laurel oaks are weaker and shorter lived than live oaks and the four storms of 2004 proved that the older ones were particularly dangerous." [10]

Live Oaks Because the Southern live oak was the second most predominant street tree in the survey, it is worth noting some of its attributes. The Southern live oak is a native tree, which is considered to be one of the premier tree species in the United States. According to Dr. Gilman, "A large, sprawling, picturesque tree, usually graced with Spanish moss and strongly reminiscent of the Old South, live oak is one of the broadest-spreading of the oaks, providing large areas of deep, inviting shade. An amazingly durable American native, it can measure its lifetime in centuries if properly located and cared for in the landscape."[11] He goes on to say live oaks have a reputation for being a tough tree and have very good wind resistance.

Pamela Crawford, a landscape architect who studied storm damage in the fall of 2004 following the hurricanes, wrote in her book ***Stormscaping: Landscaping to Minimize Wind Damage in Florida***, "Live oak is a large tree that has consistently been categorized as the most wind-tolerant shade tree for the entire state of Florida."[12]

Problems and Defects Observed

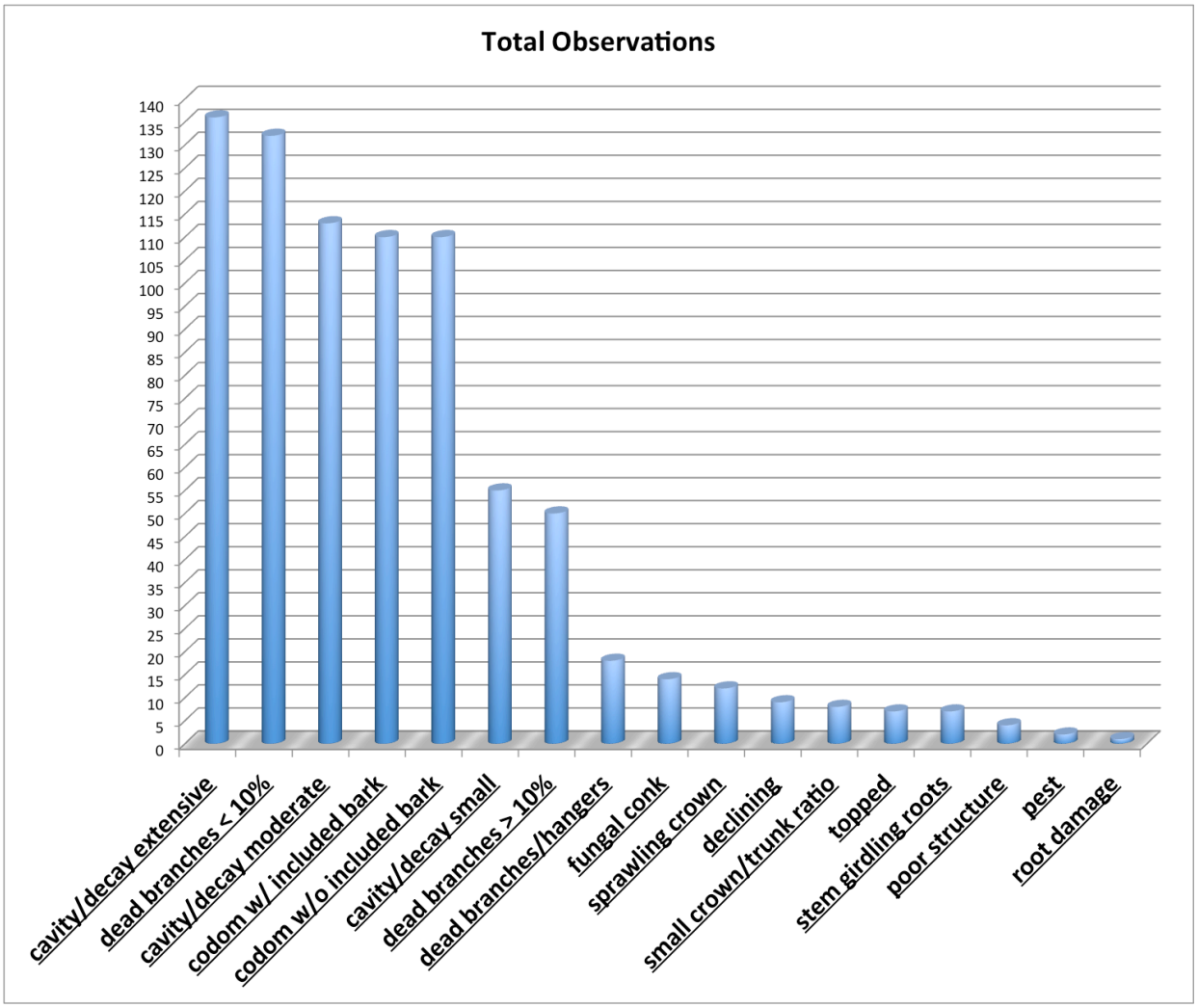

Figure 3 Note that one tree can have more than one defect and they often do. Nearly every tree had some degree of decay, which is common with older oak trees. But the predominant defect being "extensive decay" is rather unusual and indicative that the predominant species is laurel oak instead of live oak, which is less prone to decay.

Tree Health and Structural Condition

Each tree was also evaluated as to its overall health and structure. It is important to understand that health and structure are two separate and independent considerations. A tree can be healthy yet have poor and hazardous structure. Live (green) trees can fail and sometimes do. Structurally sound trees sometimes decline and die from poor health. Most of the trees evaluated (77 percent) had only fair or poor structure mostly because of codominant leaders. Twenty three percent of the trees had good structure. Trees with codominant leaders can be classified as “codominant leader without included bark” and “codominant leaders with included bark”. Trees with codominant leaders with included bark are much more prone to failure than trees with codominant leader and no included bark. A codominant leader with included bark is shown in Figures 6 and 7.

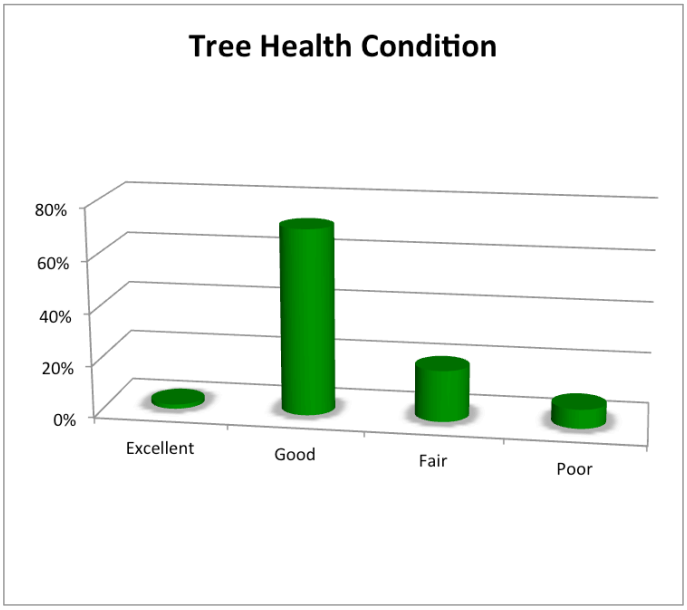

Figure 4 Most of the trees are in good health

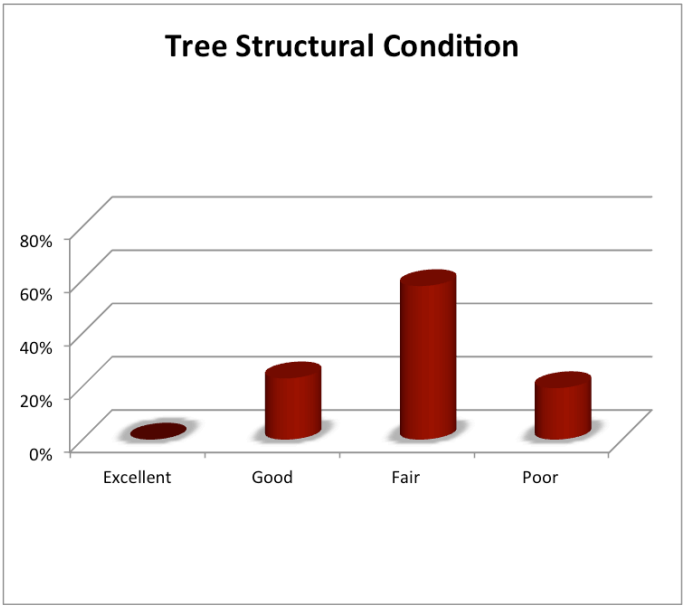

Figure 5 Most of the trees had fair or poor structure

Discussion of Problems and Defects Observed

Decay -- The number of trees found with extensive decay is 45 percent. Usually in our surveys we find the larger percent of the trees have only a small amount of decay or small cavities which is quite normal for middle-aged and older trees. Thirty eight percent of the trees had moderate levels of decay or moderately sized cavities and 17 percent of the trees had small cavities or a small amount of decay. Decay is more common as trees age. Some species such as live oak are more resistant to decay and can live many years with cavities that appear to be quite large. Laurel oaks, on the other hand, do not resist decay well and often become hollow and weakened by decay because of a small wound or broken branch that allows infection by decay organisms.

Dead Branches -- Trees were evaluated by the amount of dead branches observed in relation to the size of the crown. There are two classifications: “Dead branches less than 10 percent of the crown” and “Dead branches greater than 10 percent of the crown”. Large dead lateral branches are an indication of significant tree health and structure problems. Seventeen percent of the trees surveyed had extensive dieback and dead branches greater than 10 percent of the crown.

Dead branches are not always an indication of a tree problem. Mature trees naturally shed lower and interior branches that are getting too much shade and not producing sufficient carbohydrates for the tree. Forty four percent of the trees surveyed had a small amount of dead branches less than 10 percent of the crown. Six percent of the trees surveyed had dead branches with hangers. Gravity will eventually cause dead branches to fall. And dead branches over streets and sidewalks can become hazardous. So a regular program of dead branch spotting and removal is an important aspect of any tree maintenance program.

Dead branches appearing in the upper crown of a tree can be a sign of more serious problems usually associated with root problems or advanced internal decay. Nearly 20 percent of the trees surveyed had dead branches in more than 10 percent of their crowns. This is a large number of trees with serious problems. Dead branches in the upper crown should be examined by a qualified arborist.

Codominant Leaders

Another significant defect observed was codominant leaders with included bark -- the most failure-prone type of codominant structure. Until recently, the last 10 to 15 years or so, many plant nurseries would cut the tip off nursery trees at a height of about 10 to 12 feet to cause sprouting and make the tree bushy. This procedure was done on nearly all nursery trees to provide what was then a desirable tree shape. Now we know that clustered branches emerging from about the same location on the trunk create weak structure. These rapidly growing lateral branches clustered together on the trunk often form included bark, which means the branches are weakly attached to the

Figure 6 This laurel oak has a typical branch cluster about 12 feet above the ground. One of the leaders has decayed leaving a large decayed area (yellow arrow) where several codominant leaders are attaached to the trunk. This is a hazardous tree.

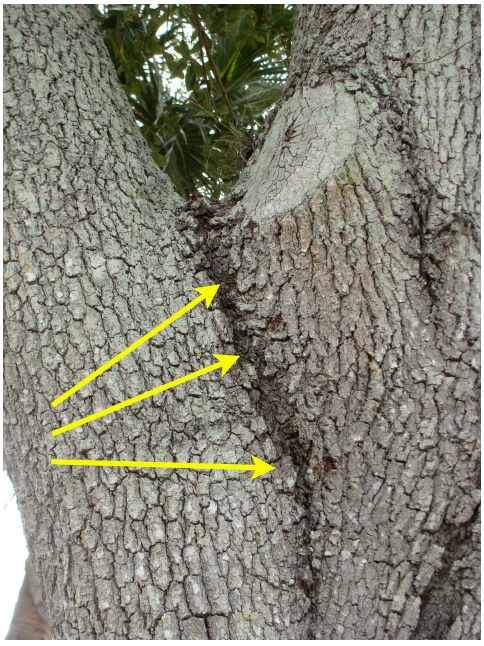

Figure 7 Two leaders with included bark are shown. These two leaders are more prone to failure by splitting when the tree crown becomes larger and strong wind conditions occur.

Figure 8 This stock photo from USDA Forestry files shows how a codominant leader with included bark splits off from the main trunk.

·Figure 9 This stock photo from USDA Forestry files shows how a codominant leader with included bark becomes decayed where the multiple leaders push against each other as they grow and increase in diameter. Long branch end weight will eventually make the leader or branch unstable.

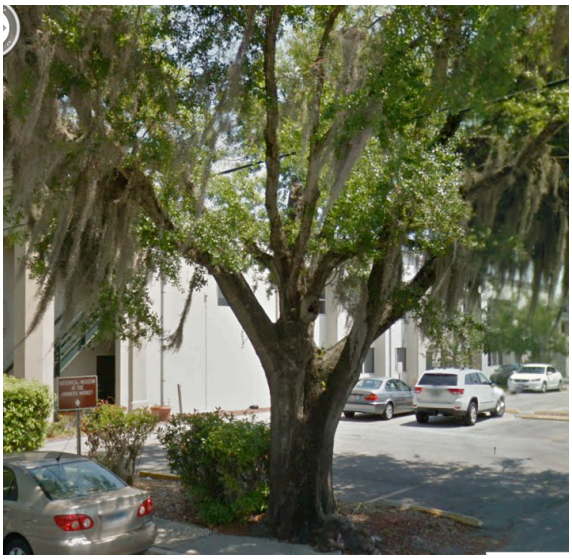

Figure 10 This Google Maps Street View photo of a New York Avenue tree that recently failed near the intersection with Fairbanks Avenue. Notice the codominant leaders. Some leaders have included bark and some do not.

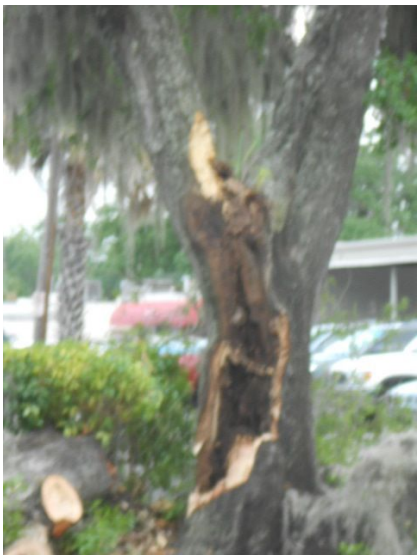

Figure 11 This is a photo of the same tree in Figure 7. Note the decay extending down into the trunk from the crotch with included bark Photo by WP Electric Utility employee.

trunk. Included bark on clustered branches is not a problem while the tree is small. But as the tree grows in size and these lateral branches elongate and become heavier, branch failures begin to occur. As end weight increases and a

force such as strong wind is applied to the branch, the branch fails by splitting where it is attached to the trunk (Figures 8 and 9). Another problem with clustered branches identified by Dr. Gilman is, “The crowded limbs chokes the leader, and they develop few side branches so they taper poorly. This makes them weak.”[13]

Today approximately 35 to 50 years after leaving the nursery and being transplanted into the landscape, we can still readily see where the nursery had cut the tip out of the street trees causing a cluster of branches emerging from near the same location on the trunk. We can now see a cluster of large, heavy lateral branches emerging from about the same height of the trunk at about 10 to 15 feet above the ground (Figure 8). The clustered branch defect created in the nursery years ago is still evident today and is what, in our opinion, has made so many of the laurel oaks prone to branch failure.

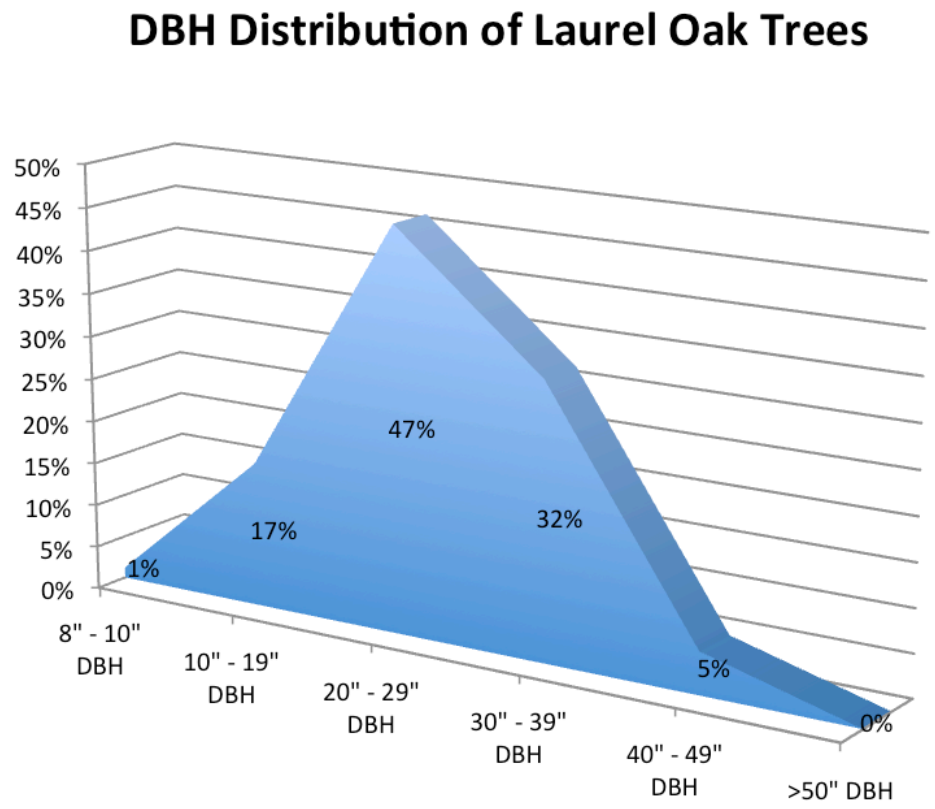

Figure 12 The distribution of trunk diameters (DBH) is a good indication of the distribution of tree age. A majority of the laurel oaks are are between 20 inches (middle age) to 50 inches (mature and declining). Winter Park has an aging laurel oak population that will require more maintenance to reduce risk in the near future.

Laurel Oak Age Distribution -- Because the laurel oak is the predominant tree found in the survey on the public right-of-way, we analyzed the DBH of the laurel oak population (Figure 12).

Maintenance

Maintenance -- Maintenance needs and recommendations are shown in Figure 13. Individual tree information is found in the data sheets in Appendix B.

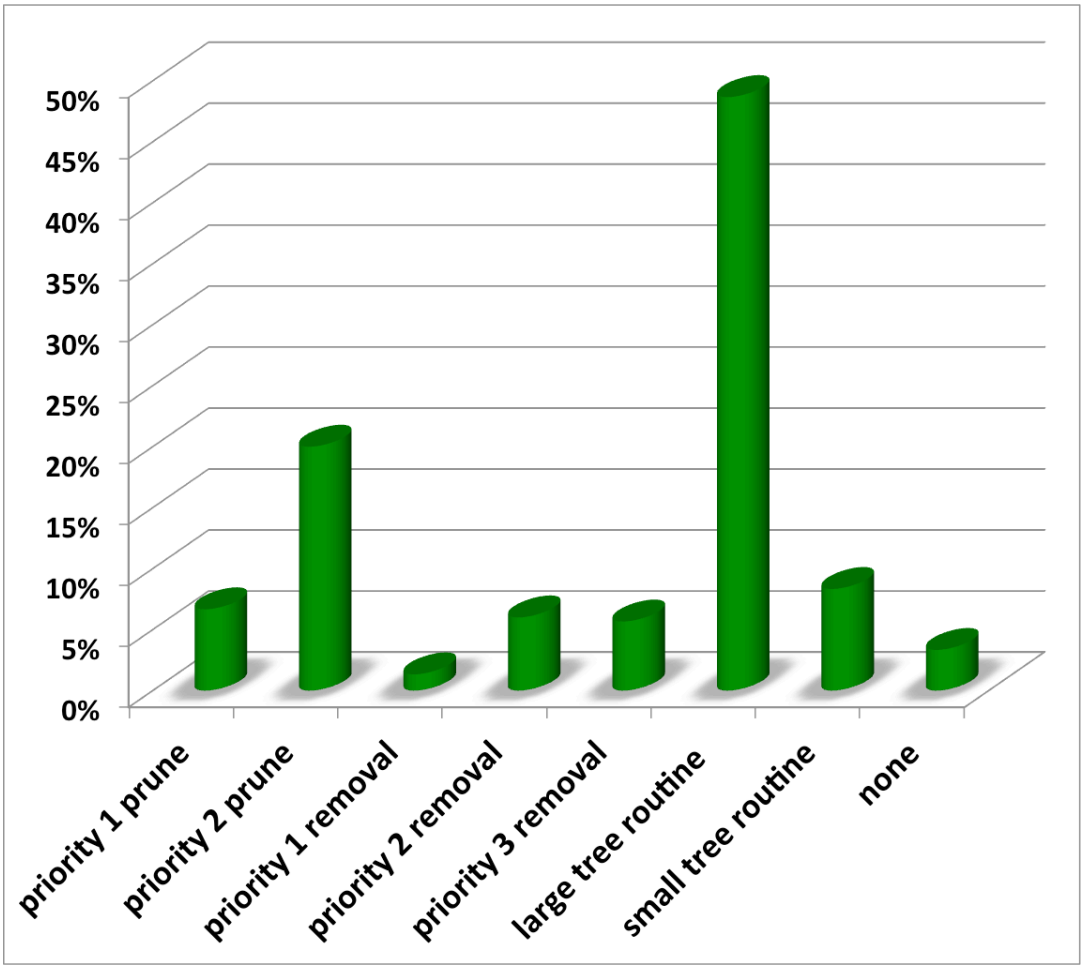

Figure 13

Tree Removal - In all 39 trees were marked for removal in either Priority 1, Priority 2 or Priority 3 removals. There were only four Priority 1 Removals which are the most urgent.

Risk Assessment -- Each tree has a Risk Assessment score based upon the four risk factors -- likelihood of failure, size of tree part likely to fail, target, and tree species. The higher the score, the higher the risk. The distribution of the Risk Assessment scores is shown in Figure 14. The City's aging laurel oak population is clearly indicated by the larger number of trees in the higher risk areas. Generally trees with a hazard score over 10 need mitigation. Trees scoring between 8 and 11 should be considered for mitigation if funds are available. Always treat the trees with higher scores first.

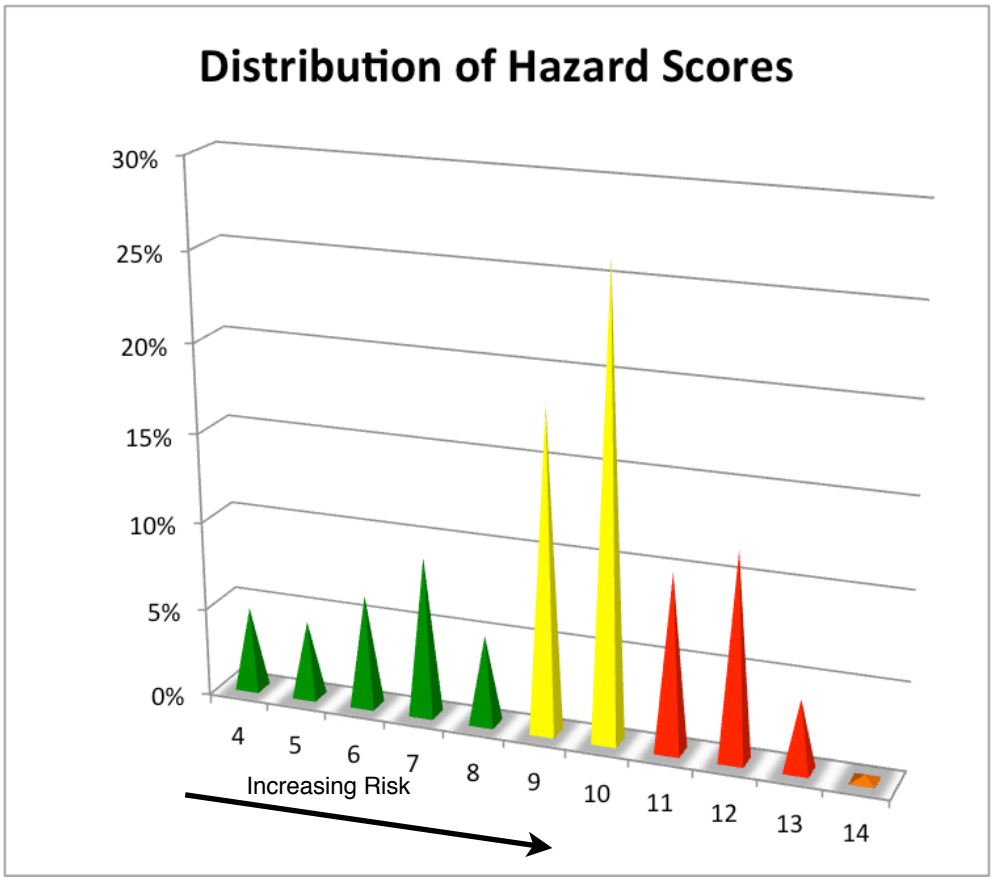

Figure 14 Higher risk score values indicate higher risk

Conclusions

A tree inventory and risk assessment provides valuable information for managing and maintaining an urban forest. Although no tree can be deemed safe and risk-free, a properly executed tree inventory and risk assessment can provide an organized and methodical way to deal with the trees that present the greatest risk. It allows for using limited resources to take care of the trees in greatest need of maintenance first and then taking care of trees with lower risk assessment scores as the budget and time permit. Use the tree inventory as a baseline for your on-going tree maintenance. Update each tree record when pruning work, sidewalk work or any escavation around a tree is done. Also record tree branch failures.

Maintenance -- There has been a lot of pruning research in the last few years on how to reduce the failure risk on mature trees with large codominant limbs. Much of that work has been done by Dr. Ed Gilman of the University of Florida. He has been cited several times in this report. Previously he recommended reduction of codominant leaders by 15 to 25 percent to reduce end weight. More recently he has been teaching that the amount of cure for large codominant limbs should be the removal of 50 up to 60 percent of the end weight. In our opinion, with the predominant laurel oak species many with poor structure, it is important for the City to be more aggressive in reducing branch end weight on trees with higher risk scores. Dr. Gilman has been giving a number of hands-on pruning courses around the state this past year. It would be beneficial for City tree maintenance crews to attend one of the Gilman pruning courses.

Sidewalks -- As with most municipalities, dealing with sidewalk-tree infrastructure conflicts in an on-going battle. Often we observed trees with health problems such as upper limb dieback and/or sparse foliage adjacent to recent sidewalk repairs, which are easily discernible by the different color of the newer sidewalk slabs. Dealing with sidewalk lifting is an important aspect of controlling risk and improving safety. There are many new construction techniques that are better for trees than simply cutting roots, which can destabilize a tree. In effect cutting roots substitutes one risk (tripping) for another -- tree instability and tree decline. An arborist knowledgeable in sidewalk construction techniques should always be part of the sidewalk repair process.

Urban Forestry Grant Program -- Every February the Florida Forest Service in Tallahassee makes available grant applications for various educational and tree

maintenance projects. Tree Risk Assessments (Inventories) are primary recipients of grant money. I strongly recommend the City of Winter Park apply for such a grant in 2013 to start a new Risk Assessment of its many thousands of trees. The website for the Urban Forestry Grant Program is http://www.floridaforestservice.com/forest_management/cfa_urban_grants.html

Appendix A Definitions

Codominant Leaders – a tree with multiple trunks often beginning as a single leader and dividing into two or more leaders of similar size higher up on the trunk. Codominant leaders are considered a structural defect because they can be prone to failure (splitting). Codominant leaders with included bark are at greater risk of failure than codominant leaders without included bark.
Compartmentalization – the ability of a tree to isolate (wall off) damage and decay and continue to grow around the damaged area. Trees that are good compartmentalizers are better able to withstand damage from injuries such as pruning cuts, gashes, lightning strikes, etc.
Condition – an evaluation of a tree's structure and health. Structural condition is not the same as health condition. You can have a healthy tree with poor structure that is prone to failure.
Critical Root Zone – this an area around a tree where roots must be protected and is another term for Tree Protection Zone
DBH – diameter at breast height, a measurement of a tree's diameter usually measured approximately four and one half feet above the ground
Epicormic sprouts – Excessive sprouting. Short twigs and small leaves growing along the upper surface of one or more main branches. The presence of epicormic sprouts are an indication of poor tree health, over-pruning, a weakened tree.
Included Bark – Bark pinched or embedded between two adjoining stems or between a branch and trunk, preventing or reducing the intermingling of branch and trunk collars, and preventing formation of a branch bark ridge. An indication of a weak union. A crack in the union.
Reduction Pruning – A recommended pruning method that reduces (subordinates) codominant leaders and large side branches by reducing their size from the outside in. Reduction pruning is often the preferred method of taking weight off the ends of branches versus the commonly utilized but undesirable method known as "lion tailing" which removes interior branches and keeps only the branches out at the end creating instability and increasing risk of branch or trunk failure. Also called End Weight Reduction Pruning.
Resistograph – a diagnostic tool that utilizes a 1/8-inch diameter drill bit to measure decay inside a tree trunk or branch by measuring and graphing the resistance of the drill bit as it moves through the different layers of sound and decayed wood.

Certification of Performance

I, Chuck Lippi, certify that:

- Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy, safe or adequately protected under all circumstances or for a specified period of time. Likewise, remedial, protective and mitigating treatments and recommendations cannot be guaranteed.
- I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the party or parties involved.
- I certify that all the statements made in this report are true, complete and correct to the best of my knowledge and belief and are made in good faith.
- The analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results or the occurrence of any subsequent events.
- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.
- I reserve the right to change my reports/opinions on the basis of new or different evidence.
- Loss or alteration of any part of this report invalidates the entire report.

I further certify that I am a member in good standing of the American Society of Consulting Arborists (ASCA), the International Society of Arboriculture (ISA) and the Florida Urban Forestry Council and am an ISA Board Certified Master Arborist FL-0501B and an ASCA Registered Consulting Arborist #443.

References

[1] American National Standards Institute (ANSI) A300 Risk Assessment Part 9 Tree, Shrub, and Other Woody Plant Management Standard Practices (***Tree Risk Assessment*** a. Tree Structure Assessment), 2011.

[2] Thomas Smiley, Nelda Matheny and Sharon Lilly, ***Best Management Practices Tree Risk Assessment***, International Society of Arboriculture, Champaign, Illinois, 2011.

[3] American National Standards Institute (ANSI) A300 Risk Assessment Part 9 Tree, Shrub, and Other Woody Plant Management Standard Practices (***Tree Risk Assessment*** a. Tree Structure Assessment), 2011.

[4] Thomas Smiley, Nelda Matheny and Sharon Lilly, ***Best Management Practices Tree Risk Assessment***, International Society of Arboriculture, Champaign, Illinois, 2011.

[5] Dr. James R. Clark and Dr. Nelda P. Matheny, ***A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas***, 2nd edition, International Society of Arboriculture, 1994, pp. 37 – 57.

[6] American National Standards Institute (ANSI) for Tree Care Operations – Tree Shrub and Other Woody Plant Maintenance – Standard Practices (Pruning), part 1, 2008

[7] Dr. Ed Gilman, ***Trees for Urban and Suburban Landscape***, Delmar Publisher, New York, 1996, p. 483.

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[9] Dr. Mary Duryea and Dr. Eliana Kampf, ***Wind and Trees: Lesson Learned from Hurricanes, Chapter 5***, University of Florida Department of Forestry Publication FOR 118, 2006, p. 6.

[10] Pamela Crawford, ***Stormscaping: Landscaping to Minimize Wind Damage in Florida***, Color Garden Publishing, 2005, p. 41.

[11] Dr. Ed Gilman, Trees for Urban and Suburban Landscape, Delmar Publisher, New York, 1996, p. 497.

[12] Pamela Crawford, ***Stormscaping: Landscaping to Minimize Wind Damage in Florida,*** Color Garden Publishing, 2005, p. 41.

[13] Dr. Ed Gilman, ***An Illustrated Guide to Pruning***, 3rd Edition, Delmar Cengage Learning, 2012, pp. 174-177.

City of Winter Park
Sample Tree Risk Assessment

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1001	Oak, Laurel	33	SE	2219	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Poor	Dead Branches > 10%	Codominant Leaders w Included Bark		Priority 2 Prune	Central leader is relatively small but dead.			No Value	2	2	3	3	10	9/4/12	C. Lippi	
1002	Oak, Live	28	SE	2199	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Good	None Apparent			Large Tree Routine Prune				No Value	1	1	2	1	5	9/4/12	C. Lippi	
1003	Oak, Laurel	35	SE	2179	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Poor	Poor	Dead Branches > 10%	Declining	Fungal conk	Priority 2 Prune	Numerous fungal conks . Consider removal.	Weak species, prone to failure. Do significant end weight reduction pruning 30 to 40%.	Mallet test negative on lower trunk	No Value	2	2	3	3	10	9/4/12	C. Lippi	
1004	Oak, Laurel	34	SE	2179	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate		Large Tree Routine Prune		Weak species, prone to failure. Do significant end weight reduction pruning 30 to 40%.	Mallet test negative on lower trunk	No Value	1	2	3	3	9	9/4/12	C. Lippi	
1005	Oak, Laurel	25	SE	2159	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark			Large Tree Routine Prune		Weak species, prone to failure.	Mallet test negative on lower trunk	No Value	1	2	3	3	9	9/4/12	C. Lippi	
1006	Oak, Laurel	31	SE	2159	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark			Large Tree Routine Prune		Weak species, prone to failure.	Mallet test negative on lower trunk	No Value	1	2	3	3	9	9/4/12	C. Lippi	
1007	Oak, Laurel	30	SE	2139	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark			Large Tree Routine Prune		Weak species, prone to failure.	Mallet test negative on lower trunk	No Value	1	2	3	3	9	9/4/12	C. Lippi	
1008	Oak, Laurel	27	SE	2139	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark	Dead Branches < 10%	Cavity/Decay - Appears Moderate	Large Tree Routine Prune	Reduction pruning recommended.	Weak species, prone to failure.	Mallet test negative on lower trunk	No Value	1	2	3	3	9	9/4/12	C. Lippi	
1009	Oak, Live	10	SE	2117	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Good	None Apparent			Small Tree Routine Prune				No Value	1	1	1	1	4	9/4/12	C. Lippi	Power line(s)
1010	Oak, Live	12	SE	2117	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Good	None Apparent			Small Tree Routine Prune				No Value	1	1	1	1	4	9/4/12	C. Lippi	Power line(s)
1011	Oak, Live	10	SE	2107	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Good	None Apparent			Small Tree Routine Prune				No Value	1	1	1	1	4	9/4/12	C. Lippi	Utility pole(s)
1012	Oak, Live	12	SE	2107	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Good	None Apparent			Small Tree Routine Prune				No Value	1	1	1	1	4	9/4/12	C. Lippi	Power line(s)
1013	Oak, Laurel	36	SE	491	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark	Dead Branches < 10%	Cavity/Decay - Appears Moderate	Large Tree Routine Prune	Reduction pruning recommended by about 30 to 40%	Weak species, prone to failure.	Mallet test negative on lower trunk	No Value	2	2	3	3	10	9/4/12	C. Lippi	
1014	Oak, Laurel	29	SE	491	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark	Dead Branches < 10%	Cavity/Decay - Appears Moderate	Large Tree Routine Prune	Reduction pruning recommended by about 30 to 40%	Weak species, prone to failure.	Decay visible just above codominant crotch.	No Value	2	2	3	3	10	9/4/12	C. Lippi	
1015	Oak, Laurel	36	SE	694	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark	Dead Branches < 10%	Cavity/Decay - Appears Moderate	Large Tree Routine Prune	Reduction pruning recommended by about 30 to 40%	Weak species, prone to failure.		No Value	1	2	3	3	9	9/4/12	C. Lippi	

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1016	Oak, Laurel	21	SE	694	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark	Dead Branches < 10%		Large Tree Routine Prune	Reduction pruning recommended by about 30 to 40% on codom leader over street	Weak species, prone to failure.		No Value	1	2	3	3	9	9/4/12	C. Lippi	
1017	Oak, Laurel	36	SE	696	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark	Dead Branches < 10%	Cavity/Decay - Appears Moderate	Large Tree Routine Prune	Reduction pruning recommended by about 30 to 40%	Weak species, prone to failure.		No Value	1	2	3	3	9	9/4/12	C. Lippi	
1018	Oak, Laurel	27	SE	696	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Fair	Codominant Leaders w Included Bark	Dead Branches < 10%		Large Tree Routine Prune	Reduction pruning recommended by about 30 to 40%	Weak species, prone to failure.		No Value	1	2	3	3	9	9/4/12	C. Lippi	
1019	Oak, Laurel	38	SE	1907	Whitehall Dr.	Berwick Dr	Lakemont Ave.	Good	Poor	Cavity/Decay - Appears Extensive	Dead Branches < 10%		Priority 2 Prune	Reduction pruning recommended by about 30 to 40%	Weak species, prone to failure. Large internal cavity on south side of lower trunk	Further testing required to determine extent of decay.	No Value	2	3	3	3	11	9/4/12	C. Lippi	
1020	Oak, Laurel	24	SE	1900	Whitehall dr	Lakomont ave	Berwick dr	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 2 Prune	Reduction pruning recommended. Significant canopy dieback. Consider removal.	Weak species, prone to failure.		No Value	3	2	4	3	12	9/4/12	D. Lippi	
1021	Oak, Laurel	38	SE	1900	Whitehall dr	Lakomont ave	Berwick dr	Good	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 1 Prune	Very poor structure. Large Decay along central leaders. Reduction pruning likely ineffective. Consider removal.	Weak species, prone to failure.		No Value	3	3	4	3	13	9/4/12	D. Lippi	
1022	Oak, Laurel	42	SE	1906	Whitehall dr	Lakomont ave	Berwick dr	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Large Tree Routine Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		No Value	2	2	4	3	11	9/4/12	D. Lippi	
1023	Oak, Laurel	28	SE	1912	Whitehall dr	Lakomont ave	Berwick dr	Fair	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Large Tree Routine Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		No Value	2	2	4	3	11	9/4/12	D. Lippi	
1024	Oak, Laurel	23	SE	1912	Whitehall dr	Lakomont ave	Berwick dr	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune	Reduction pruning recommended.	Weak species, prone to failure.		As Soon As Possible	4	2	4	3	13	9/4/12	D. Lippi	Street light(s)
1025	Oak, Laurel	32	SE	1918	Whitehall dr	Lakomont ave	Berwick dr	Declining	Fair	Dead Branches > 10%	Cavity/Decay - Appears Extensive	Improperly Pruned - Topped	Priority 1 Removal		Weak species, prone to failure.		Urgent	4	3	4	3	14	9/4/12	D. Lippi	

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1026	Oak, Laurel	28	SE	1918	Whitehall dr	Lakomont ave	Berwick dr	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		No Value	2	3	4	3	12	9/4/12	D. Lippi	
1027	Oak, Laurel	32	SE	1936	Whitehall dr	Lakomont ave	Berwick dr	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		No Value	2	3	4	3	12	9/4/12	D. Lippi	
1028	Oak, Live	14	SE	1936	Whitehall dr	Lakomont ave	Berwick dr	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune				No Value	1	1	3	1	6	9/4/12	D. Lippi	
1029	Oak, Laurel	38	SE	2010	Whitehall dr	Lakomont ave	Berwick dr	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		No Value	2	3	4	3	12	9/4/12	D. Lippi	
1030	Oak, Laurel	40	SE	2010	Whitehall dr	Lakomont ave	Berwick dr	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		No Value	2	3	4	3	12	9/4/12	D. Lippi	
1031	Oak, Laurel	42	SE	2108	Whitehall dr	Lakomont ave	Berwick dr	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 1 Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		No Value	3	3	4	3	13	9/4/12	D. Lippi	
1032	Oak, Laurel	26	SE	2128	Whitehall dr	Lakomont ave	Berwick dr	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		As Soon As Possible	2	2	4	3	11	9/4/12	D. Lippi	
1033	Oak, Laurel	33	SE	2128	Whitehall dr	Lakomont ave	Berwick dr	Fair	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 3 Removal	Large Decay along central leaders. Reduction pruning likely ineffective	Weak species, prone to failure.		As Soon As Possible	3	3	4	3	13	9/4/12	D. Lippi	
1034	Oak, Laurel	13	SE	2138	Whitehall dr	Lakomont ave	Berwick dr	Good	Good	None Apparent	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.	Weak species, prone to failure.		No Value	1	1	4	3	9	9/4/12	D. Lippi	
1035	Oak, Laurel	39	SE	2158	Whitehall dr	Lakomont ave	Berwick dr	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 1 Prune	Reduction pruning recommended. Structural pruning recommended.	Weak species, prone to failure.		As Soon As Possible	2	3	4	3	12	9/4/12	D. Lippi	
1036	Oak, Laurel	34	SE	2158	Whitehall dr	Lakomont ave	Berwick dr	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 2 Removal	Very poor structure. Large Decay along central leaders. Reduction pruning likely ineffective	Weak species, prone to failure.		As Soon As Possible	3	3	4	3	13	9/4/12	D. Lippi	

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1037	Oak, Laurel	34	SE	2178	Whitehall dr	Lakomont ave	Berwick dr	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Fungal Conk	Priority 2 Removal		Weak species, prone to failure.	Very poor structure. Large Decay along central leaders. Reduction pruning likely ineffective	As Soon As Possible	3	3	3	3	12	9/4/12	D. Lippi	Street light(s)
1038	Oak, Laurel	35	SE	2198	Whitehall dr	Lakomont ave	Berwick dr	Good	Fair	Dead Branches > 10%	Cavity/Decay - Appears Extensive	Fungal Conk	Priority 1 Prune	Reduction pruning recommended.	Consider removal. Weak species, prone to failure.	Hypoxylon fungus found in decay. Monitor.	As Soon As Possible	3	2	4	3	12	9/4/12	D. Lippi	
1039	Oak, Laurel	37	SE	2218	Whitehall dr	Lakomont ave	Berwick dr	Fair	Poor	Dead Branches > 10%	Cavity/Decay - Appears Extensive	Codominant Leaders w Included Bark	Priority 2 Removal	Older specimen with poor structure	Weak species, prone to failure.		As Soon As Possible	3	3	4	3	13	9/4/12	D. Lippi	
1040	Oak, Laurel	15	SE	2218	Whitehall dr	Lakomont ave	Berwick dr	Fair	Poor	Dead Branches > 10%	Cavity/Decay - Appears Moderate	Codominant Leaders w Included Bark	Priority 1 Prune	Reduction pruning recommended.	Consider removal. Weak species, prone to failure.		As Soon As Possible	3	2	4	3	12	9/4/12	D. Lippi	
1041	Oak, Laurel	27	SE	2218	Whitehall dr	Lakomont ave	Berwick dr	Fair	Poor	Dead Branches > 10%	Cavity/Decay - Appears Extensive	Poor Location	Priority 1 Prune	Reduction pruning recommended.	Consider removal. Weak species, prone to failure.		Urgent	3	2	4	3	12	9/4/12	D. Lippi	Utility pole(s)
1042	Oak, Laurel	29	SE	694	Selkirk Dr	Whitehall Dr	Branchory Rd	Poor	Poor	Canker/Decay - Appears Extensive	Fungal conk	Declining	Priority 2 Removal	Tree already marked for removal w dot.			No Value	3	3	3	3	12	9/4/12	C. Lippi	
1043	Oak, Laurel	24	SE	694	Selkirk Dr	Whitehall Dr	Branchory Rd	Fair	Fair	Canker/Decay - Appears Moderate			Large Tree Routine Prune	Unsightly bark canker is a cosmetic problem.			No Value	1	2	3	3	9	9/4/12	C. Lippi	
1044	Oak, Live	14	SE	686	Selkirk Dr	Whitehall Dr	Branchory Rd	Good	Good	Codominant Leaders w/o Included Bark			Small Tree Routine Prune	Now is time to train this small tree's structure.	Roots beginning to lift sidewalk		No Value	1	1	2	1	5	9/4/12	C. Lippi	
1045	Oak, Laurel	33	SE	686	Selkirk Dr	Whitehall Dr	Branchory Rd	Good	Poor	Canker/Decay - Appears Moderate	Canker/Decay - Appears Moderate	Stem Girdling Root(s)	Large Tree Routine Prune	Large codom leader over street has large crack. Reduce this branch by at least 50%			No Value	2	2	3	3	10	9/4/12	C. Lippi	
1046	Oak, Laurel	22	SE	678	Selkirk Dr	Whitehall Dr	Branchory Rd	Good	Good	Canker/Decay - Appears Small			Large Tree Routine Prune	Manage epicormic growth.			No Value	1	1	2	3	7	9/4/12	C. Lippi	
1047	Oak, Laurel	22	SE	678	Selkirk Dr	Whitehall Dr	Branchory Rd	Good	Fair	Canker/Decay - Appears Small	Fungal conk	Dead Branches < 10%	Large Tree Routine Prune		Reduction pruning recommended on large branch over street.	Conk too immature to identify. Unsightly bark canker is a cosmetic problem.	No Value	2	2	3	3	10	9/4/12	C. Lippi	
1048	Oak, Laurel	28	SE	670	Selkirk Dr	Whitehall Dr	Branchory Rd	Poor	Poor	Root System Damaged	Declining	Dead Branches > 10%	Priority 2 Prune	Remove dead branches soon before they fall.	Consider removal.	Root system likely was damaged by restriction is surrounding pavement, water lines and sidewalk repair.	No Value	3	3	2	3	11	9/4/12	C. Lippi	Water lines

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1049	Oak, Laurel	37	SE	670	Selkirk Dr	Whitehall Dr	Branchory Rd	Fair	Poor	Sprawling Crown	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 2 Prune	Remove dead branches soon before they fall. Reduction pruning recommended by about 40 to 50%.			No Value	3	2	2	3	10	9/4/12	C. Lippi	
1050	Oak, Live	9	SE	630	Selkirk Dr	Whitehall Dr	Branchory Rd	Good	Good	None Apparent			Small Tree Routine Prune	Now is time to train this small tree's structure.			No Value	1	1	1	1	4	9/4/12	C. Lippi	Water lines
1051	Oak, Live	11	SE	624	Selkirk Dr	Whitehall Dr	Branchory Rd	Good	Good	None Apparent			Small Tree Routine Prune	Now is time to train this small tree's structure.			No Value	1	1	1	1	4	9/4/12	C. Lippi	
1052	Oak, Live	12	SE	624	Selkirk Dr	Whitehall Dr	Branchory Rd	Good	Good	None Apparent			Small Tree Routine Prune	Now is time to train this small tree's structure.			No Value	1	1	1	1	4	9/4/12	C. Lippi	Water lines
1053	Oak, Live	25	SE	614	Selkirk Dr	Whitehall Dr	Branchory Rd	Good	Good	Codominant Leaders w/o Included Bark			Large Tree Routine Prune	Now is time to train this small tree's structure.			No Value	1	1	1	1	4	9/4/12	C. Lippi	
1054	Oak, Laurel	24	SE	645	Selkirk dr	Banchory rd	Whitehall dr	Declining	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 1 Removal	Previously marked with painted slash.			Urgent	3	3	3	3	12	9/4/12	D. Lippi	
1055	Oak, Laurel	37	SE	605	Selkirk dr	Whitehall dr	Banchory rd	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune	Structural pruning recommended. Reduction pruning recommended.	Weak species, prone to failure. Further testing required to determine extent of decay.		No Value	2	2	3	3	10	9/4/12	D. Lippi	
1056	Oak, Laurel	9	SE	613	Selkirk dr	Whitehall dr	Banchory rd	Excellent	Good	Codominant Leaders w/o Included Bark	Dead Branches < 10	Cavity/Decay - Appears Small	Small Tree Routine Prune				No Value	1	1	1	3	6	9/4/12	D. Lippi	
1057	Oak, Laurel	9	SE	623	Selkirk dr	Whitehall dr	Banchory rd	Excellent	Good	Codominant Leaders w/o Included Bark	Dead Branches < 10%	Cavity/Decay - Appears Small	Small Tree Routine Prune				No Value	1	1	1	3	6	9/4/12	D. Lippi	
1058	Oak, Laurel	8	SE	637	Selkirk dr	Whitehall dr	Banchory rd	Excellent	Good	None Apparent	Dead Branches < 10%	Cavity/Decay - Appears Small	Small Tree Routine Prune				No Value	1	1	1	3	6	9/4/12	D. Lippi	
1059	Oak, Laurel	31	SE	645	Selkirk dr	Whitehall dr	Banchory rd	Fair	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 2 Removal	Previously marked with painted dot.			Urgent	3	3	3	3	12	9/4/12	D. Lippi	
1060	Oak, Laurel	38	SE	645	Selkirk dr	Whitehall dr	Banchory rd	Fair	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 2 Removal	Previously marked with painted dot.			Urgent	3	3	3	3	12	9/4/12	D. Lippi	
1061	Oak, Laurel	32	SE	653	Selkirk dr	Whitehall dr	Banchory rd	Fair	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended.			As Soon As Possible	3	2	2	3	10	9/4/12	D. Lippi	
1062	Oak, Laurel	39	SE	653	Selkirk dr	Whitehall dr	Banchory rd	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 3 Removal	Extensive basal decay on large older specimen.	Reduction pruning is an option. Must be aggressive - 50% canopy reduction.		As Soon As Possible	3	3	3	3	12	9/4/12	D. Lippi	

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1063	Oak, Laurel	33	SE	661	Selkirk dr	Whitehall dr	Banchory rd	Poor	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 2 Removal	Large central cavity along codominant leaders. Multiple. BRanches previously broken.			No Value	4	2	3	3	12	9/4/12	D. Lippi	
1064	Oak, Laurel	32	SE	669	Selkirk dr	Whitehall dr	Banchory rd	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Fungal Conk	Priority 3 Removal		Weak species, prone to failure.		No Value	3	3	3	3	12	9/4/12	D. Lippi	
1065	Oak, Laurel	13	SE	677	Selkirk dr	Whitehall dr	Banchory rd	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches > 10%	Large Tree Routine Prune		Weak species, prone to failure.		No Value	1	1	2	3	7	9/4/12	D. Lippi	
1066	Oak, Laurel	33	SE	677	Selkirk dr	Whitehall dr	Banchory rd	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune	Structural pruning recommended. Reduction pruning recommended.	Weak species, prone to failure. Further testing required to determine extent of decay.		No Value	2	2	3	3	10	9/4/12	D. Lippi	
1067	Oak, Laurel	28	SE	685	Selkirk dr	Whitehall dr	Banchory rd	Fair	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune	Structural pruning recommended. Reduction pruning recommended.	Weak species, prone to failure.		No Value	2	2	3	3	10	9/4/12	D. Lippi	
1068	Oak, Laurel	28	SE	685	Selkirk dr	Whitehall dr	Banchory rd	Fair	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 2 Prune	Structural pruning recommended. Reduction pruning recommended.	Weak species, prone to failure. Consider removal.		As Soon As Possible	3	2	3	3	11	9/4/12	D. Lippi	
1069	Oak, Laurel	23	SE	693	Selkirk dr	Whitehall dr	Banchory rd	Good	Fair	Codominant Leaders w Included Bark	Dead Branches > 10%	Cavity/Decay - Appears Small	Large Tree Routine Prune	Structural pruning recommended.			No Value	1	2	3	3	9	9/4/12	D. Lippi	
1070	Oak, Live	12	SE	2117	Selkirk dr	Whitehall dr	Banchory rd	Excellent	Fair	Codominant Leaders w Included Bark	Dead Branches > 10%	Cavity/Decay - Appears Small	Small Tree Routine Prune				No Value	1	1	2	1	5	9/4/12	D. Lippi	
1071	Oak, Live	12	SE	2117	Selkirk dr	Whitehall dr	Banchory rd	Excellent	Fair	Codominant Leaders w Included Bark	Dead Branches > 10%	Cavity/Decay - Appears Small	Small Tree Routine Prune				No Value	1	1	3	1	6	9/4/12	D. Lippi	
1073	Oak, Laurel	27	SE	605	Banchory rd	Selkirk dr	Dunraven rd	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 3 Removal	Significant decay on all main leaders. Reduction pruning not a good option.			No Value	3	3	3	3	12	9/4/12	D. Lippi	
1074	Oak, Laurel	34	SE	0	Banchory rd	Selkirk dr	Dunraven rd	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended.	basal decay. Further testing required to determine extent of decay.		No Value	2	3	3	3	11	9/4/12	D. Lippi	
1075	Oak, Laurel	38	SE	605	Banchory Rd.	Dunraven Dr	Selkirk Dr	Fair	Fair	Canker/Decay - Appears Moderate	Codominant Leaders w Included Bark	Dead Branches > 10%	Large Tree Routine Prune	Reduction pruning recommended 40 to 50% on longer codoms.			No Value	1	2	3	3	9	9/4/12	C. Lippi	

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1075	Oak, Laurel	29	SE	601	Banchory rd	Dunblane dr	Dunraven dr	Good	Fair	Codominant Leaders w Included Bark	Stem Girdling Root(s)	Fungal Conk	Priority 2 Prune	Reduction pruning recommended.			No Value	2	1	3	3	9	9/4/12	D. Lippi	
1076	Pine, Slash	12	SW	0	Glenridge Way	Forrest Rd	Winter Park Rd	Fair	Fair	None Apparent			None Recommended				No Value	1	1	2	3	7	9/4/12	C. Lippi	
1077	Oak, Laurel	18	SW	0	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Good	None Apparent			None Recommended				No Value	1	1	2	3	7	9/4/12	C. Lippi	
1078	Pine, Slash	15	SW	0	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Good	None Apparent			None Recommended				No Value	1	1	2	3	7	9/4/12	C. Lippi	
1079	Oak, Laurel	21	SW	0	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Fair	Codominant Leaders w Included Bark			Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	1	2	3	7	9/4/12	C. Lippi	
1080	Oak, Laurel	11	SW	0	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Good	None Apparent			None Recommended				No Value	1	1	2	3	7	9/4/12	C. Lippi	
1081	Oak, Laurel	15	SW	0	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Good	None Apparent			None Recommended				No Value	1	1	2	3	7	9/4/12	C. Lippi	
1082	Oak, Laurel	11	SW	0	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Fair	None Apparent			None Recommended				No Value	1	1	2	3	7	9/4/12	C. Lippi	
1083	Chinese Tallo	12	SW	160	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Good	None Apparent			Priority 3 Removal		Invasive species. Removal recommended.		No Value	1	1	1	3	6	9/4/12	C. Lippi	
1084	Oak, Laurel	41	SW	160	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Fair	Codominant Leaders w Included Bark			Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	2	3	3	9	9/4/12	C. Lippi	
1085	Oak, Laurel	18	SW	201	Glenridge way	Winter Park rd	Forrest rd	Good	Good	Cavity/Decay - Appears Small	Dead Branches < 10%		Large Tree Routine Prune	Weak species, prone to failure.			No Value	1	1	2	3	7	9/4/12	D. Lippi	
1086	Oak, Laurel	29	SW	201	Glenridge way	Winter Park rd	Forrest rd	Good	Good	Cavity/Decay - Appears Small	Dead Branches < 10%		Large Tree Routine Prune	Weak species, prone to failure.			No Value	1	2	2	3	8	9/4/12	D. Lippi	
1087	Oak, Laurel	39	SW	220	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Fair	Codominant Leaders w Included Bark			Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	2	3	3	9	9/4/12	C. Lippi	
1088	Oak, Laurel	34	SW	220	Glenridge Way	Forrest Rd	Winter Park Rd	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate		Large Tree Routine Prune	Reduction pruning recommended.	Large dead branch over swale	Shorten large lateral branches next to old pruning wounds and cavities	No Value	1	2	3	3	9	9/4/12	C. Lippi	
1089	Oak, Laurel	29	SW	251	Glenridge way	Forrest rd	Winter Park rd	Fair	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 3 Removal	Weak species, prone to failure.	Large decay on central leader. Reduction pruning likely ineffective .		As Soon As Possible	3	2	3	3	11	9/4/12	D. Lippi	
1090	Oak, Laurel	29	SW	251	Glenridge way	Winter Park rd	Forrest rd	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Weak species, prone to failure.	Reduction pruning recommended.		No Value	2	2	4	3	11	9/4/12	D. Lippi	Power line(s)
1091	Oak, Laurel	27	SW	251	Glenridge way	Winter Park rd	Forrest rd	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Weak species, prone to failure.	Reduction pruning recommended.		As Soon As Possible	2	1	2	3	8	9/4/12	D. Lippi	Power line(s)
1092	Oak, Laurel	18	SW	251	Glenridge way	Winter Park rd	Forrest rd	Good	Good	Cavity/Decay - Appears Small	None Apparent	Dead Branches < 10%	Large Tree Routine Prune	Weak species, prone to failure.			As Soon As Possible	1	1	2	3	7	9/4/12	D. Lippi	Power line(s)
1093	Oak, Laurel	17	SW	221	Glenridge way	Winter Park rd	Forrest rd	Good	Good	Cavity/Decay - Appears Small	Codominant Leaders w Included Bark	Dead Branches < 10%	Large Tree Routine Prune	Weak species, prone to failure.	Utility line improperly installed. Tree used as cross support for utility line.		As Soon As Possible	1	1	2	3	7	9/4/12	D. Lippi	Power line(s)

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1094	Oak, Laurel	18	SW	221	Glenridge way	Winter Park rd	Forrest rd	Good	Good	Cavity/Decay - Appears Small	Codominant Leaders w/o Included Bark	Dead Branches < 10%	Large Tree Routine Prune	Weak species, prone to failure.	Utility line improperly installed. Tree used as cross support for utility line.		As Soon As Possible	1	1	2	3	7	9/4/12	D. Lippi	Power line(s)
1095	Hickory, Pign	11	SW	0	Laurel Rd	Glenridge Way	Lake Sue Ave	Fair	Fair	Cavity/Decay - Appears Moderate			None Recommended	Tree is crowded by nearby live oak and is very close to sidewalk.			No Value	1	1	1	1	4	9/4/12	C. Lippi	Power line(s)
1096	Oak, Live	24	SW	1960	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Good	Dead Branches < 10%			Large Tree Routine Prune				No Value	1	1	1	1	4	9/4/12	C. Lippi	Power line(s)
1097	Oak, Laurel	26	SW	1960	Laurel Rd	Glenridge Way	Lake Sue Ave	Fair	Good	Dead Branches < 10%	Pest Problem	Codominant Leaders w/o Included Bark	Large Tree Routine Prune	Some evidence of borer activity but tree does not appear stressed			No Value	1	1	1	3	6	9/4/12	C. Lippi	Power line(s)
1098	Oak, Laurel	24	SW	1950	Laurel Rd	Glenridge Way	Lake Sue Ave	Fair	Fair	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Codominant Leaders w/o Included Bark	Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	2	1	3	7	9/4/12	C. Lippi	Power line(s)
1099	Oak, Laurel	17	SW	1930	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Good	Canker/Decay - Appears Small	Dead Branches < 10%		Large Tree Routine Prune	Reduction pruning recommended on west lateral branch			No Value	1	1	1	3	6	9/4/12	C. Lippi	Power line(s)
1100	Oak, Laurel	18	SW	1930	Laurel Rd	Glenridge Way	Lake Sue Ave	Fair	Good	Pest Problem	Dead Branches < 10%	Stem Girdling Root(s)	Large Tree Routine Prune	Evidence of borers but tree does not appear stressed	Upper crown is thinning. Could be from drought.		No Value	1	1	1	3	6	9/4/12	C. Lippi	Power line(s)
1101	Oak, Laurel	11	SW	1920	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Good	None Apparent			None Recommended	Evidence of borers but tree does not appear stressed	Upper crown is thinning. Could be from drought.		No Value	1	1	1	3	6	9/4/12	C. Lippi	Power line(s)
1102	Oak, Laurel	25	SW	1920	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Fair	Codominant Leaders w Included Bark		Stem Girdling Root(s)	Large Tree Routine Prune				No Value	1	2	2	3	8	9/4/12	C. Lippi	Power line(s)
1103	Oak, Laurel	32	SW	1910	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Fair	Codominant Leaders w Included Bark		Stem Girdling Root(s)	Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	2	2	3	8	9/4/12	C. Lippi	Power line(s)
1104	Oak, Laurel	21	SW	1850	Laurel Rd	Glenridge Way	Lake Sue Ave	Fair	Fair	Codominant Leaders w Included Bark	Improperly Pruned - Overlifted	Improperly Pruned - Topped	Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	1	2	3	7	9/4/12	C. Lippi	Power line(s)
1105	Oak, Laurel	25	SW	1840	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Good	Dead Branches < 10%	Canker/Decay - Appears Small		Large Tree Routine Prune				No Value	1	1	2	3	7	9/4/12	C. Lippi	Power line(s)
1106	Oak, Laurel	34	SW	1820	Laurel Rd	Glenridge Way	Lake Sue Ave	Fair	Fair	Dead Branches > 10%	Cavity/Decay - Appears Extensive		Large Tree Routine Prune	Reduction pruning recommended. Center leader has died and decayed			No Value	2	2	3	3	10	9/4/12	C. Lippi	Power line(s)
1107	Oak, Laurel	23	SW	1800	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Good	None Apparent			Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	1	2	3	7	9/4/12	C. Lippi	Power line(s)

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1108	Oak, Live	13	SW	1750	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Good	Codominant Leaders w Included Bark			Small Tree Routine Prune	Structural pruning recommended on lower lateral branch			No Value	1	1	1	1	4	9/4/12	C. Lippi	Power line(s)
1109	Oak, Live	11	SW	1750	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Good	Codominant Leaders w Included Bark			Small Tree Routine Prune	Structural pruning recommended on lower lateral branch			No Value	1	1	1	1	4	9/4/12	C. Lippi	Power line(s)
1110	Oak, Laurel	31	SW	1730	Laurel rd	Glenridge way	Lake Sue ave	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Small Crown to Trunk Ratio	Priority 2 Prune	Consider removal.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/4/12	D. Lippi	
1111	Hickory, Pign	22	SW	1730	Laurel Rd	Glenridge Way	Lake Sue Ave	Good	Good	None Apparent			Large Tree Routine Prune	Reduction pruning recommended on east lateral branch.	Very close to sidewalk.		No Value	1	1	2	1	5	9/4/12	C. Lippi	Power line(s)
1112	Oak, Laurel	30	SW	1771	Laurel rd	Glenridge way	Lake Sue ave	Fair	Poor	Improperly Pruned - Topped	Codominant Leaders w Included Bark	Small Crown to Trunk Ratio	Priority 2 Prune	Consider removal.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/4/12	D. Lippi	
1113	Oak, Live	20	SW	1721	Laurel rd	Lake Sue ave	Glenridge way	Good	Good	None Apparent	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune				No Value	1	1	3	1	6	9/4/12	D. Lippi	
1114	Oak, Live	19	SW	1721	Laurel rd	Lake Sue ave	Glenridge way	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune				No Value	1	1	3	1	6	9/4/12	D. Lippi	
1115	Oak, Laurel	22	SW	1721	Laurel rd	Lake Sue ave	Glenridge way	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 2 Prune	Consider removal.	Weak species, prone to failure.		No Value	3	2	2	3	10	9/4/12	D. Lippi	
1116	Oak, Laurel	28	SW	1741	Laurel rd	Lake Sue ave	Glenridge way	Declining	Poor	Dead Branches/Hanger(s)	Cavity/Decay - Appears Extensive		Priority 1 Removal	75% dead.	Weak species, prone to failure.		Urgent	4	2	3	3	12	9/4/12	D. Lippi	
1117	Oak, Live	13	SW	1741	Laurel rd	Lake Sue ave	Glenridge way	Good	Good	None Apparent	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune				No Value	1	1	2	1	5	9/4/12	D. Lippi	
1118	Oak, Live	11	SW	1771	Laurel rd	Lake Sue ave	Glenridge way	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune				No Value	1	1	2	1	5	9/4/12	D. Lippi	
1119	Oak, Laurel	23	SW	1771	Laurel rd	Lake Sue ave	Glenridge way	Good	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 2 Prune	Consider removal.	Main leader dead and decayed. Possible column of decay to develop.	Weak species, prone to failure.	No Value	2	2	2	3	9	9/4/12	D. Lippi	
1120	Oak, Laurel	11	SW	1821	Laurel Rd	Lake Sue Ave	Glenridge Way	Good	Good	None Apparent			None Recommended				No Value	1	1	1	3	6	9/4/12	C. Lippi	
1121	Oak, Laurel	23	SW	1821	Laurel Rd	Lake Sue Ave	Glenridge Way	Good	Poor	Codominant Leaders w Included Bark			None Recommended	Reduction pruning recommended 40 to 50% on longer codoms.			No Value	3	2	2	3	10	9/4/12	C. Lippi	
1122	Oak, Laurel	22	SW	1821	Laurel Rd	Lake Sue Ave	Glenridge Way	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small		Large Tree Routine Prune	Reduction pruning recommended.			No Value	2	2	2	3	9	9/4/12	C. Lippi	
1123	Oak, Laurel	25	SW	1821	Laurel Rd	Lake Sue Ave	Glenridge Way	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Small		Large Tree Routine Prune	Reduction pruning recommended.			No Value	2	2	2	3	9	9/4/12	C. Lippi	
1124	Oak, Laurel	20	SW	1841	Laurel rd	Lake Sue ave	Glenridge way	Declining	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 2 Removal	Previously marked with paint slash .			Urgent	3	2	3	3	11	9/4/12	D. Lippi	

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1125	Oak, Live	22	SW	1861	Laurel rd	Lake Sue ave	Glenridge way	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Reduced foliage. Possible drought stress.		No Value	3	1	3	1	8	9/4/12	D. Lippi	
1126	Oak, Laurel	32	SW	1911	Laurel rd	Lake Sue ave	Glenridge way	Good	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended.	Main leader dead and decayed. Possible column of decay to develop.	Weak species, prone to failure.	No Value	2	2	2	3	9	9/4/12	D. Lippi	
1127	Oak, Laurel	31	SW	1911	Laurel rd	Lake Sue ave	Glenridge way	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Borer activity found along base and main lower trunk		No Value	2	2	2	3	9	9/4/12	D. Lippi	
1128	Oak, Laurel	26	SW	1931	Laurel rd	Lake Sue ave	Glenridge way	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended.			No Value	2	2	3	3	10	9/4/12	D. Lippi	
1129	Oak, Laurel	16	SW	1931	Laurel rd	Lake Sue ave	Glenridge way	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduced foliage. borer Activity found along base and main lower trunk	Decay along main leader at base. Further testing required to determine extent of decay.		No Value	2	1	3	3	9	9/4/12	D. Lippi	
1130	Oak, Live	24	SW	1961	Laurel rd	Lake Sue ave	Glenridge way	Fair	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduced foliage. Possible drought stress.	Decay along main leader at base. Further testing required to determine extent of decay.		No Value	2	1	3	1	7	9/4/12	D. Lippi	
1131	Oak, Live	28	SW	1961	Laurel rd	Lake Sue ave	Glenridge way	Fair	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Reduced foliage. Possible drought stress.			No Value	1	1	3	1	6	9/4/12	D. Lippi	
1132	Oak, Laurel	28	SW	0	Laurel rd	Lake Sue ave	Glenridge way	Fair	Fair	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Small Crown to Trunk Ratio	Priority 3 Removal	Significant crown dieback. Reduced foliage. borer Activity found along base and main lower trunk	Weak species, prone to failure.		As Soon As Possible	3	3	2	3	11	9/4/12	D. Lippi	
1133	Oak, Laurel	24	SW	1960	Winter Park Rd	Glenridge Way	Lake Sue Ave	Good	Fair	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Codominant Leaders w/o Included Bark	Priority 2 Prune	Reduction pruning recommended.	Previous branch failures evident.		No Value	2	2	3	3	10	9/5/12	C. Lippi	
1134	Oak, Laurel	28	SW	1960	Winter Park Rd	Glenridge Way	Lake Sue Ave	Good	Fair	Cavity/Decay - Appears Moderate		Codominant Leaders w Included Bark	Priority 2 Prune	Reduction pruning recommended. Manage epicormic growth.	Decay at codom crotch. Evidence of previous branch failures.		No Value	2	2	3	3	10	9/5/12	C. Lippi	
1135	Oak, Laurel	26	SW	1900	Winter Park Rd	Glenridge Way	Lake Sue Ave	Fair	Fair	Cavity/Decay - Appears Moderate	Sprawling Crown	Codominant Leaders w Included Bark	Large Tree Routine Prune	Reduction pruning recommended. Manage epicormic growth.			No Value	2	2	3	3	10	9/5/12	C. Lippi	

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1136	Oak, Laurel	32	SW	1900	Winter Park Rd	Glenridge Way	Lake Sue Ave	Good	Fair	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Codominant Leaders w Included Bark	Priority 2 Prune	End weight reduction pruning has been done. Remove dead branch over driveway	Vines excessive. Cut vines.		No Value	3	1	2	3	9	9/5/12	C. Lippi	
1137	Oak, Laurel	24	SW	1900	Winter Park Rd	Glenridge Way	Lake Sue Ave	Good	Good	Cavity/Decay - Appears Small		Codominant Leaders w Included Bark	Large Tree Routine Prune	End weight reduction pruning has been done. Remove dead branch over driveway	Vines excessive. Cut vines.		No Value	1	1	2	3	7	9/5/12	C. Lippi	
1138	Oak, Laurel	30	SW	1900	Winter Park Rd	Glenridge Way	Lake Sue Ave	Good	Good	Cavity/Decay - Appears Small			Large Tree Routine Prune	End weight reduction pruning has been done previously. Do more next pruning cycle.	Vines excessive. Cut vines.		No Value	1	1	2	3	7	9/5/12	C. Lippi	
1139	Oak, Laurel	27	SW	0	Winter Park Rd	Glenridge Way	Lake Sue Ave	Poor	Poor	Fungal conk	Dead Branches < 10%	Declining	Priority 2 Removal			Mallet test negative on lower trunk	No Value	3	3	3	3	12	9/5/12	C. Lippi	
1140	Oak, Laurel	24	SW	1860	Winter Park rd	Glenridge way	Lake Sue ave	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Small Crown to Trunk Ratio	Priority 1 Prune	Weak species, prone to failure.	Reduction pruning recommended. Structural pruning recommended.	Borer activity at base	As Soon As Possible	2	3	4	3	12	9/5/12	D. Lippi	
1141	Oak, Laurel	20	SW	1860	Winter Park rd	Glenridge way	Lake Sue ave	Fair	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 1 Prune	Weak species, prone to failure.	Consider removal.	Borer activity at base	As Soon As Possible	3	2	4	3	12	9/5/12	D. Lippi	
1142	Oak, Laurel	26	SW	1860	Winter Park rd	Glenridge way	Lake Sue ave	Fair	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 2 Prune	Weak species, prone to failure.	Further testing required to determine cause. Consider removal.	Borer activity at base	As Soon As Possible	2	3	4	3	12	9/5/12	D. Lippi	
1143	Oak, Laurel	21	SW	1840	Winter Park rd	Glenridge way	Lake Sue ave	Fair	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Weak species, prone to failure.	Structural pruning recommended.	Borer activity at base	As Soon As Possible	2	1	4	3	10	9/5/12	D. Lippi	
1144	Oak, Laurel	25	SW	1840	Winter Park rd	Glenridge way	Lake Sue ave	Fair	Poor	Declining	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 2 Removal	Weak species, prone to failure.	Previously marked with painted dot	Borer activity at base	As Soon As Possible	4	2	4	3	13	9/5/12	D. Lippi	
1145	Oak, Laurel	26	SW	1840	Winter Park rd	Glenridge way	Lake Sue ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Weak species, prone to failure.	Consider removal.	Further testing required to determine extent of decay.	As Soon As Possible	2	2	4	3	11	9/5/12	D. Lippi	
1146	Oak, Laurel	40	SW	1770	Winter Park rd	Glenridge way	Lake Sue ave	Fair	Poor	Improperly Pruned - Topped	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 1 Prune	Weak species, prone to failure.	Consider removal.	Borer activity at base	As Soon As Possible	3	3	4	3	13	9/5/12	D. Lippi	
1147	Oak, Live	11	SW	1770	Winter Park rd	Glenridge way	Lake Sue ave	Good	Fair	None Apparent	Cavity/Decay - Appears Small	Dead Branches < 10%	Small Tree Routine Prune				No Value	1	1	4	1	7	9/5/12	D. Lippi	
1148	Oak, Live	18	SW	1740	Winter Park rd	Glenridge way	Lake Sue ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			No Value	1	1	4	1	7	9/5/12	D. Lippi	
1149	Camphor	32	SW	1710	Winter Park rd	Glenridge way	Lake Sue ave	Poor	Poor	Declining	Small Crown to Trunk Ratio	Dead Branches/Hanger(s)	Priority 3 Removal	USDA classified invasive			As Soon As Possible	3	1	4	2	10	9/5/12	D. Lippi	

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1150	Camphor	32	SW	0	Lake Sue ave	Laurel rd	Winterpark rd	Good	Good	Codominant Leaders w/o Included Bark	Small Crown to Trunk Ratio	Dead Branches < 10%	Priority 2 Prune	USDA classified invasive			No Value	2	2	4	2	10	9/5/12	D. Lippi	Power line(s)
1151	Oak, Laurel	31	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1152	Oak, Laurel	27	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1153	Oak, Laurel	23	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Stem Girdling Root(s)	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1154	Oak, Laurel	29	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1155	Oak, Laurel	27	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1156	Oak, Laurel	24	NW	1005	New York ave	Park ave	Webster ave	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	No Value	3	2	3	3	11	9/5/12	D. Lippi	Power line(s)
1157	Oak, Laurel	33	NW	1005	New York ave	Park ave	Webster ave	Good	Good	None Apparent	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	Power line(s)
1158	Oak, Live	8	NW	1005	New York ave	Park ave	Webster ave	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Small Tree Routine Prune	Structural pruning recommended.			As Soon As Possible	1	1	2	1	5	9/5/12	D. Lippi	Power line(s)
1159	Oak, Laurel	29	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	Power line(s)
1160	Oak, Live	8	NW	1005	New York ave	Park ave	Webster ave	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Small Tree Routine Prune	Structural pruning recommended.			As Soon As Possible	1	1	2	1	5	9/5/12	D. Lippi	Power line(s)
1161	Oak, Laurel	22	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	2	1	3	3	9	9/5/12	D. Lippi	Power line(s)

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1162	Oak, Laurel	24	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	2	1	3	3	9	9/5/12	D. Lippi	Power line(s)
1163	Oak, Laurel	36	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	2	1	3	3	9	9/5/12	D. Lippi	Power line(s)
1164	Oak, Laurel	40	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure. Further testing required to determine extent of decay.	As Soon As Possible	2	1	3	3	9	9/5/12	D. Lippi	Power line(s)
1165	Oak, Laurel	30	NW	1005	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	As Soon As Possible	2	1	3	3	9	9/5/12	D. Lippi	Power line(s)
1166	Oak, Laurel	22	NW	1021	New York ave	Park ave	Webster ave	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Small Crown to Trunk Ratio	Priority 1 Prune	Structural pruning recommended. Reduction pruning recommended.	Consider removal.	Weak species, prone to failure.	As Soon As Possible	3	2	3	3	11	9/5/12	D. Lippi	Power line(s)
1167	Oak, Laurel	38	NW	1021	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1168	Oak, Laurel	39	NW	1021	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1169	Oak, Live	8	NW	1021	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	None Apparent	Small Tree Routine Prune	Structural pruning recommended.			As Soon As Possible	1	1	2	1	5	9/5/12	D. Lippi	Power line(s)
1170	Oak, Laurel	25	NW	1021	New York ave	Park ave	Webster ave	Fair	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Fungal Conk	Priority 2 Prune	Structural pruning recommended. Reduction pruning recommended.	Ganoderma spp. Found at base. Consider removal.	Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1171	Oak, Laurel	37	NW	1021	New York ave	Park ave	Webster ave	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 1 Prune	Structural pruning recommended. Reduction pruning recommended.	Consider removal.	Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1172	Oak, Laurel	15	NW	1100	New York ave	Park ave	Webster ave	Declining	Poor	Declining	None Apparent	Dead Branches/Hanger(s)	Priority 2 Removal	Previously marked with painted dot		Weak species, prone to failure.	Urgent	4	3	3	3	13	9/5/12	D. Lippi	Power line(s)

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1173	Oak, Laurel	29	NW	1100	New York ave	Park ave	Webster ave	Fair	Fair	Declining	Dead Branches > 10%	Cavity/Decay - Appears Moderate	Priority 1 Prune	Reduction pruning recommended.	Consider removal.	Weak species, prone to failure. Borer activity at base	As Soon As Possible	3	2	3	3	11	9/5/12	D. Lippi	Power line(s)
1174	Oak, Laurel	26	NW	1108	New York ave	Park ave	Webster ave	Fair	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 1 Prune	Reduction pruning recommended.	Consider removal.	Weak species, prone to failure. Borer activity at base	As Soon As Possible	3	2	3	3	11	9/5/12	D. Lippi	
1175	Oak, Laurel	42	NW	1162	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1176	Oak, Laurel	34	NW	1162	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Vines excessive.	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1177	Oak, Laurel	34	NW	1162	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1178	Oak, Laurel	33	NW	1162	New York ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1179	Oak, Laurel	33	NW	1162	New York ave	Park ave	Webster ave	Fair	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches/Hanger(s)	Priority 1 Prune	Reduction pruning recommended. Consider removal.	Borer activity at base	Weak species, prone to failure.	No Value	3	2	3	3	11	9/5/12	D. Lippi	
1180	Oak, Laurel	34	NW	1300	Park ave	Pennsylvania ave	New York ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1181	Oak, Laurel	32	NW	1330	Park ave	Pennsylvania ave	New York ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1182	Oak, Laurel	41	NW	1330	Park ave	Pennsylvania ave	New York ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1183	Oak, Laurel	27	NW	1330	Park ave	Pennsylvania ave	New York ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1184	Oak, Laurel	50	NW	1330	Park ave	Pennsylvania ave	New York ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1185	Oak, Laurel	32	NW	1330	Park ave	Pennsylvania ave	New York ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended.	Borer activity at base	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1186	Oak, Laurel	35	NW	1330	Park ave	Pennsylvania ave	New York ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Fungal Conk	Priority 3 Removal			Weak species, prone to failure.	No Value	3	3	3	3	12	9/5/12	D. Lippi	
1187	Oak, Laurel	38	NW	1330	Park ave	Pennsylvania ave	New York ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 3 Removal	Basal decay		Weak species, prone to failure.	No Value	3	3	3	3	12	9/5/12	D. Lippi	
1188	Oak, Laurel	40	NW	1504	Park ave	Pennsylvania ave	New York ave	Declining	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 2 Removal			Weak species, prone to failure.	No Value	4	3	3	3	13	9/5/12	D. Lippi	
1189	Oak, Laurel	26	NW	1504	Park ave	Pennsylvania ave	New York ave	Declining	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune			Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1190	Oak, Live	11	NW	1504	Park ave	Pennsylvania ave	New York ave	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Small Tree Routine Prune				No Value	1	1	2	1	5	9/5/12	D. Lippi	
1191	Oak, Laurel	32	NW	1504	Park ave	Pennsylvania ave	New York ave	Declining	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 1 Prune	Consider removal.	Reduction pruning recommended.	Weak species, prone to failure.	As Soon As Possible	3	2	4	3	12	9/5/12	D. Lippi	
1192	Oak, Laurel	38	NW	1504	Park ave	Pennsylvania	New York	Good	Fair	Codominant	Cavity/Decay -	Dead Branches	Priority 1 Prune		Reduction	Weak species,	No Value	2	2	3	3	10	9/5/12	D. Lippi	

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1193	Oak, Live	32	NW	1504	Park ave	Pennsylvania ave	New York ave	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune		Reduction pruning recommended.	Weak species, prone to failure.	No Value	1	2	3	1	7	9/5/12	D. Lippi	
1194	Oak, Laurel	43	NW	1504	Park ave	Pennsylvania ave	New York ave	Good	Fair	Improperly Pruned - Topped	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 1 Prune	Consider removal.	Reduction pruning recommended.	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1195	Oak, Laurel	36	NW	1504	Pennsylvania ave	Webster ave	Park ave	Good	Fair	Improperly Pruned - Topped	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 1 Prune	Consider removal.	Reduction pruning recommended.	Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	
1196	Oak, Laurel	28	NW	0	Pennsylvania Ave	Park Ave	Webster Ave	Good	Fair	Cavity/Decay - Appears Small	Codominant Leaders w Included Bark		Large Tree Routine Prune	Reduction pruning recommended 40 to 50% on longer lateral branches.	Some. Evidence of borers but no signs of stress. Recent sidewalk repair evident. Likely roots were cut.		No Value	2	2	3	3	10	9/5/12	C. Lippi	
1197	Oak, Laurel	30	NW	0	Pennsylvania Ave	Park Ave	Webster Ave	Good	Fair	Cavity/Decay - Appears Small	Codominant Leaders w Included Bark		Large Tree Routine Prune	Reduction pruning recommended 40 to 50% on longer lateral branches.	Some. Evidence of borers but no signs of stress		No Value	1	2	3	3	9	9/5/12	C. Lippi	
1198	Oak, Laurel	29	NW	1184	Pennsylvania Ave	Webster Ave	Park Ave	Poor	Fair	Cavity/Decay - Appears Moderate	Codominant Leaders w Included Bark		Priority 2 Prune	Reduction pruning recommended.	Crown dieback and decay in many lateral branches increase risk of failure	Consider removal.	No Value	2	3	3	3	11	9/5/12	C. Lippi	
1199	Oak, Laurel	30	NW	0	Pennsylvania Ave	Park Ave	Webster Ave	Good	Good	Cavity/Decay - Appears Small			Large Tree Routine Prune	Reduction pruning recommended 40 to 50% on longer lateral branches.			No Value	1	2	3	3	9	9/5/12	C. Lippi	
1200	Oak, Laurel	16	NW	1184	Pennsylvania Ave	Webster Ave	Park Ave	Fair	Poor	Cavity/Decay - Appears Extensive			Large Tree Routine Prune	Reduction pruning recommended.	Mallet test positive on northeast side of lower trunk. Further testing required to determine extent of decay.		No Value	3	2	3	3	11	9/5/12	C. Lippi	
1201	Oak, Laurel	27	NW	1184	Pennsylvania Ave	Webster Ave	Park Ave	Fair	Poor	Cavity/Decay - Appears Extensive	Codominant Leaders w Included Bark		Priority 2 Removal	Large cavity on southwest side of trunk. Mallet test positive			No Value	3	3	3	3	12	9/5/12	C. Lippi	
1202	Oak, Laurel	23	NW	1184	Pennsylvania Ave	Webster Ave	Park Ave	Good	Good	Codominant Leaders w/o Included Bark			Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	2	3	3	9	9/5/12	C. Lippi	
1203	Oak, Laurel	18	NW	1157	Pennsylvania Ave	Park Ave	Webster Ave	Fair	Poor	Codominant Leaders w/o Included Bark			Priority 2 Prune	Reduction pruning recommended.	Recent sidewalk repair evident. Likely roots were cut causing sparse foliage and instability. Consider removal.		No Value	2	2	3	3	10	9/5/12	C. Lippi	

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1204	Oak, Laurel	18	NW	1157	Pennsylvania Ave	Park Ave	Webster Ave	Good	Good	Codominant Leaders w/o Included Bark			Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	1	3	3	8	9/5/12	C. Lippi	
1205	Oak, Laurel	20	NW	1184	Pennsylvania Ave	Webster Ave	Park Ave	Good	Good				Large Tree Routine Prune				No Value	1	1	3	3	8	9/5/12	C. Lippi	
1206	Oak, Laurel	19	NW	1184	Pennsylvania Ave	Webster Ave	Park Ave	Fair	Good	Fungal conk			Large Tree Routine Prune	Recent sidewalk repair evident. Likely roots were cut.	Monitor for increased decay and dieback of crown.	Mallet test negative on lower trunk	No Value	1	2	3	3	9	9/5/12	C. Lippi	
1207	Oak, Laurel	16	NW	1164	Pennsylvania Ave	Webster Ave	Park Ave	Good	Good	Codominant Leaders w/o Included Bark			Large Tree Routine Prune	Recent. Sidewalk repair evident. Likely roots were cut.			No Value	1	1	3	3	8	9/5/12	C. Lippi	
1208	Oak, Laurel	20	NW	1124	Pennsylvania Ave	Webster Ave	Park Ave	Good	Fair	Codominant Leaders w Included Bark			Large Tree Routine Prune	Reduce one of two leaders.			No Value	1	2	3	3	9	9/5/12	C. Lippi	
1209	Oak, Laurel	19	NW	1115	Pennsylvania Ave	Park Ave	Webster Ave	Good	Fair	Codominant Leaders w Included Bark	Improperly Pruned - Overlifted		Large Tree Routine Prune		Sidewalk recently repaired. Likely roots were cut.		No Value	1	2	3	3	9	9/5/12	C. Lippi	
1210	Oak, Laurel	19	NW	1101	Pennsylvania Ave	Park Ave	Webster Ave	Good	Fair	Codominant Leaders w Included Bark			Large Tree Routine Prune	Reduction pruning recommended.	Sidewalk recently repaired. Likely roots were cut.		No Value	1	2	3	3	9	9/5/12	C. Lippi	
1211	Oak, Laurel	22	NW	1104	Pennsylvania Ave	Webster Ave	Park Ave	Good	Fair	Codominant Leaders w/o Included Bark			Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	2	3	3	9	9/5/12	C. Lippi	
1212	Oak, Laurel	18	NW	0	Pennsylvania Ave	Webster Ave	Park Ave	Good	Good				Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	1	3	3	8	9/5/12	C. Lippi	
1213	Oak, Laurel	23	NW	1012	Pennsylvania ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Stem Girdling Root(s)	Large Tree Routine Prune		Reduction pruning recommended.	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1214	Oak, Laurel	18	NW	0	Pennsylvania Ave	Webster Ave	Park Ave	Good	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small		Large Tree Routine Prune				No Value	1	1	3	3	8	9/5/12	C. Lippi	
1215	Oak, Laurel	15	NW	1020	Pennsylvania Ave	Webster Ave	Park Ave	Poor	Fair	Dead Branches > 10%	Cavity/Decay - Appears Small		Priority 2 Prune	Remove dead branches in upper crown and cut vine growing into tree from vine covered fence			No Value	2	2	3	3	10	9/5/12	C. Lippi	
1216	Oak, Laurel	24	NW	1012	Pennsylvania ave	Park ave	Webster ave	Good	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 3 Removal		Basal decay	Weak species, prone to failure.	As Soon As Possible	3	3	3	3	12	9/5/12	D. Lippi	
1217	Oak, Laurel	19	NW	1012	Pennsylvania Ave	Webster Ave	Park Ave	Good	Fair	Dead Branches < 10%	Cavity/Decay - Appears Small		Large Tree Routine Prune	Remove dead branches in upper crown. Reduction pruning recommended.			No Value	1	2	3	3	9	9/5/12	C. Lippi	
1218	Oak, Laurel	31	NW	927	Pennsylvania ave	Park ave	Webster ave	Fair	Fair	Improperly Pruned - Topped	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 3 Removal	Basal decay	Reduction pruning recommended.	Weak species, prone to failure.	As Soon As Possible	3	3	3	3	12	9/5/12	D. Lippi	
1219	Oak, Laurel	22	NW	927	Pennsylvania ave	Park ave	Webster ave	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune		Reduction pruning recommended.	Weak species, prone to failure.	As Soon As Possible	4	2	3	3	12	9/5/12	D. Lippi	

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1220	Oak, Laurel	32	NW	927	Pennsylvania ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune	Mallet test positive. Further testing required to determine extent of decay.	Reduction pruning recommended.	Weak species, prone to failure.	No Value	3	2	3	3	11	9/5/12	D. Lippi	
1221	Oak, Laurel	12	NW	927	Pennsylvania ave	Park ave	Webster ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Large Tree Routine Prune	Mallet test positive. Further testing required to determine extent of decay.	Reduction pruning recommended.	Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1222	Oak, Laurel	27	NW	922	Pennsylvania Ave	Webster Ave	Park Ave	Good	Fair	Dead Branches < 10%	Cavity/Decay - Appears Moderate		Priority 2 Prune	Reduction pruning recommended.	Central leader is decayed which may extend into crotch area with other lateral branches.		No Value	2	2	3	3	10	9/5/12	C. Lippi	
1224	Oak, Laurel	22	NW	922	Pennsylvania Ave	Webster Ave	Park Ave	Good	Poor	Cavity/Decay - Appears Extensive			Priority 2 Removal	There is a large area of decay in the main crotch where the lateral branches connect to the trunk.			As Soon As Possible	4	2	3	3	12	9/5/12	C. Lippi	
1225	Oak, Laurel	28	NW	823	Pennsylvania ave	Webster ave	Park ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune		Reduction pruning recommended.	Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1226	Oak, Laurel	18	NE	1206	Phelps ave	Aloma ave	Chestnut ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended.		Weak species, prone to failure.	No Value	1	2	3	3	9	9/5/12	D. Lippi	Street light(s)
1227	Oak, Laurel	19	NE	1206	Phelps ave	Aloma ave	Chestnut ave	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended.	Consider removal. Tree appears to be declining.	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	Street light(s)
1228	Oak, Laurel	28	NE	1206	Phelps ave	Aloma ave	Chestnut ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Sprawling Crown	Priority 2 Prune	Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	3	2	3	3	11	9/5/12	D. Lippi	Power line(s)
1229	Oak, Laurel	17	NE	1206	Phelps ave	Aloma ave	Chestnut ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.		Weak species, prone to failure.	No Value	1	1	3	3	8	9/5/12	D. Lippi	
1230	Oak, Laurel	23	NE	1206	Phelps ave	Aloma ave	Chestnut ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Sprawling Crown	Large Tree Routine Prune	Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1231	Sweetgum, A	16	NE	0	Phelps ave	Pine ave	Spruce ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			No Value	1	1	3	2	7	9/5/12	D. Lippi	
1232	Oak, Laurel	13	NE	0	Phelps ave	Pine ave	Spruce ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 2 Prune	Structural pruning recommended.			No Value	3	2	3	3	11	9/5/12	D. Lippi	
1233	Sweetgum, A	16	NE	0	Phelps ave	Pine ave	Spruce ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			No Value	1	2	3	2	8	9/5/12	D. Lippi	
1234	Oak, Laurel	20	NE	0	Phelps ave	Spruce ave	Walnut ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Structural pruning recommended.			No Value	3	1	3	3	10	9/5/12	D. Lippi	

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1235	Maple, Red	14	NE	0	Phelps ave	Walnut ave	Chestnut ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			No Value	2	1	3	3	9	9/5/12	D. Lippi	
1236	Oak, Live	24	NE	0	Phelps ave	Walnut ave	Chestnut ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.	Manage epicormic growth.		No Value	1	1	3	1	6	9/5/12	D. Lippi	
1237	Sweetgum, A	16	NE	0	Phelps ave	Walnut ave	Chestnut ave	Good	Fair	Dead Branches > 10%	Cavity/Decay - Appears Moderate	None Apparent	Large Tree Routine Prune	Structural pruning recommended.			No Value	3	1	3	2	9	9/5/12	D. Lippi	
1238	Sweetgum, A	19	NE	0	Phelps ave	Chestnut ave	Walnut ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.	Possible lightning strike. Appears to be healing		No Value	1	2	3	2	8	9/5/12	D. Lippi	
1239	Sweetgum, A	17	NE	0	Phelps ave	Chestnut ave	Walnut ave	Declining	Poor	Dead Branches/Hanger(s)	Cavity/Decay - Appears Extensive	Poor Structure	Priority 3 Removal				As Soon As Possible	3	3	3	2	11	9/5/12	D. Lippi	
1240	Maple, Red	14	NE	0	Phelps ave	Chestnut ave	Walnut ave	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.	Large decay at base. Consider removal.		No Value	2	2	3	3	10	9/5/12	D. Lippi	
1241	Maple, Red	13	NE	0	Phelps ave	Chestnut ave	Walnut ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			No Value	2	2	3	3	10	9/5/12	D. Lippi	
1242	Oak, Live	11	NE	0	Phelps ave	Walnut ave	Spruce ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			No Value	1	1	3	1	6	9/5/12	D. Lippi	
1243	Oak, Laurel	25	NE	0	Phelps ave	Walnut ave	Spruce ave	Good	Poor	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Dead Branches < 10%	Priority 2 Prune	Structural pruning recommended.	Reduction pruning recommended.	Weak species, prone to failure. Consider removal.	As Soon As Possible	3	3	3	3	12	9/5/12	D. Lippi	
1244	Oak, Laurel	17	NE	0	Phelps ave	Walnut ave	Spruce ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Structural pruning recommended.	Reduction pruning recommended.	Weak species, prone to failure.	No Value	2	1	3	3	9	9/5/12	D. Lippi	
1245	Oak, Water	23	NE	0	Phelps ave	Walnut ave	Spruce ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Structural pruning recommended.	Reduction pruning recommended.	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1246	Oak, Laurel	26	NE	0	Phelps ave	Spruce ave	Pine ave	Fair	Poor	Poor Structure	Cavity/Decay - Appears Extensive	Fungal Conk	Priority 3 Removal	Ganoderma spp. Found at base.		Weak species, prone to failure.	As Soon As Possible	4	2	3	3	12	9/5/12	D. Lippi	
1247	Oak, Laurel	23	NE	0	Phelps ave	Spruce ave	Pine ave	Fair	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 1 Prune			Weak species, prone to failure.	As Soon As Possible	3	3	3	3	12	9/5/12	D. Lippi	Power line(s)
1248	Oak, Laurel	23	NE	0	Phelps ave	Spruce ave	Pine ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1249	Oak, Laurel	18	NE	0	Phelps ave	Pine ave	Elm ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1250	Oak, Laurel	22	NE	1206	Phelps ave	Elm ave	Mayfield ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1251	Oak, Live	22	NE	1206	Phelps ave	Elm ave	Mayfield ave	Fair	Good	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Small Crown to Trunk Ratio	Large Tree Routine Prune	Reduction pruning recommended.	Vines excessive.		No Value	1	2	3	1	7	9/5/12	D. Lippi	Power line(s)

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1252	Oak, Laurel	29	NE	1206	Phelps ave	Elm ave	Mayfield ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune	Reduction pruning recommended.		Weak species, prone to failure.	No Value	3	2	3	3	11	9/5/12	D. Lippi	
1253	Oak, Laurel	32	NE	1206	Phelps ave	Elm ave	Mayfield ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1254	Oak, Laurel	22	NE	0	Phelps ave	Mayfield ave	Palmer ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1255	Oak, Laurel	26	NE	1017	Phelps ave	Palmer ave	Oakhurst ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1256	Oak, Laurel	23	NE	1017	Phelps ave	Palmer ave	Oakhurst ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Sprawling Crown	Priority 3 Removal			Weak species, prone to failure.	As Soon As Possible	2	3	3	3	11	9/5/12	D. Lippi	
1257	Oak, Laurel	23	NE	0	Phelps ave	Palmer ave	Oakhurst ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune			Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1258	Oak, Laurel	28	NE	957	Phelps ave	Oakhurst ave	Woodland ave	Good	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 1 Prune	Reduction pruning recommended. Structural pruning recommended.	Consider removal.	Weak species, prone to failure.	No Value	3	2	3	3	11	9/5/12	D. Lippi	
1259	Oak, Laurel	28	NE	957	Phelps ave	Oakhurst ave	Woodland ave	Declining	Poor	Fungal Conk	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 1 Removal			Weak species, prone to failure.	Urgent	4	3	3	3	13	9/5/12	D. Lippi	
1260	Oak, Laurel	22	NE	957	Phelps ave	Oakhurst ave	Woodland ave	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Priority 2 Prune			Weak species, prone to failure.	No Value	3	2	3	3	11	9/5/12	D. Lippi	
1261	Oak, Live	11	NE	957	Phelps ave	Oakhurst ave	Woodland ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Small Tree Routine Prune				No Value	1	1	2	1	5	9/5/12	D. Lippi	
1262	Oak, Live	12	NE	957	Phelps ave	Oakhurst ave	Woodland ave	Good	Fair	None Apparent	Cavity/Decay - Appears Small	Dead Branches < 10%	Small Tree Routine Prune				No Value	1	1	2	1	5	9/5/12	D. Lippi	
1263	Oak, Laurel	33	NE	847	Phelps ave	Woodland ave	Dale ave	Good	Poor	Cavity/Decay - Appears Extensive	Codominant Leaders w/o Included Bark	Poor Structure	Priority 3 Removal	Entire base hollow		Weak species, prone to failure.	As Soon As Possible	3	3	4	3	13	9/5/12	D. Lippi	
1264	Oak, Laurel	22	NE	847	Phelps ave	Woodland ave	Dale ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1265	Oak, Laurel	19	NE	847	Phelps ave	Woodland ave	Dale ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1266	Oak, Laurel	27	NE	847	Phelps ave	Woodland ave	Dale ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches/Hanger(s)	Priority 2 Removal			Weak species, prone to failure.	As Soon As Possible	3	3	3	3	12	9/5/12	D. Lippi	
1267	Oak, Laurel	33	NE	847	Phelps ave	Woodland ave	Dale ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches > 10%	Priority 2 Prune			Weak species, prone to failure.	No Value	3	2	3	3	11	9/5/12	D. Lippi	
1268	Oak, Laurel	20	NE	785	Phelps ave	Dale ave	Lakehurst ave	Poor	Poor	Declining	Cavity/Decay - Appears Extensive	Sprawling Crown	Priority 3 Removal			Weak species, prone to failure.	As Soon As Possible	3	2	3	3	11	9/5/12	D. Lippi	
1269	Oak, Laurel	24	NE	785	Phelps ave	Dale ave	Lakehurst ave	Fair	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Poor Structure	Priority 2 Prune		Vines excessive.	Weak species, prone to failure.	No Value	3	2	2	3	10	9/5/12	D. Lippi	

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1270	Oak, Laurel	25	NE	785	Phelps ave	Dale ave	Lakehurst ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended. Structural pruning recommended.	Vines excessive.	Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1271	Oak, Laurel	22	NE	1683	Phelps ave	Dale ave	Lakehurst ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1272	Oak, Laurel	22	NE	1683	Phelps ave	Dale ave	Lakehurst ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	
1273	Oak, Laurel	21	NE	620	Phelps ave	Walker ave	Taylor ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1274	Oak, Laurel	22	NE	688	Phelps ave	Walker ave	Taylor ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended. Structural pruning recommended.		Weak species, prone to failure.	No Value	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1275	Oak, Live	16	NE	688	Phelps ave	Walker ave	Taylor ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			As Soon As Possible	1	1	3	1	6	9/5/12	D. Lippi	Power line(s)
1276	Oak, Live	15	NE	688	Phelps ave	Walker ave	Taylor ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			As Soon As Possible	1	1	3	1	6	9/5/12	D. Lippi	Power line(s)
1277	Oak, Live	11	NE	688	Phelps ave	Walker ave	Taylor ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended.			As Soon As Possible	1	1	3	1	6	9/5/12	D. Lippi	Power line(s)
1278	Oak, Live	34	NE	710	Phelps ave	Taylor ave	Windsor ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.			No Value	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1279	Oak, Laurel	36	NE	710	Phelps ave	Taylor ave	Windsor ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Dead Branches < 10%	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.			No Value	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1280	Oak, Laurel	20	NE	0	Phelps ave	Windsor ave	Oakhurst ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Sprawling Crown	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1281	Oak, Laurel	15	NE	0	Phelps ave	Windsor ave	Oakhurst ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Sprawling Crown	Small Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1282	Oak, Laurel	25	NE	790	Phelps ave	Windsor ave	Oakhurst ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Moderate	Sprawling Crown	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.		Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1283	Oak, Laurel	19	NE	810	Phelps ave	Windsor ave	Oakhurst ave	Good	Fair	Codominant Leaders w/o Included Bark	Cavity/Decay - Appears Extensive	Sprawling Crown	Large Tree Routine Prune	Structural pruning recommended. Reduction pruning recommended.	Manage epicormic growth.	Weak species, prone to failure.	As Soon As Possible	2	2	3	3	10	9/5/12	D. Lippi	Power line(s)
1284	Oak, Laurel	37	NW	910	Phelps Ave	Woodland Ave	Palmer Ave	Good	Fair	Canker/Decay - Appears Moderate	Sprawling Crown	Codominant Leaders w/o Included Bark	Large Tree Routine Prune	Reduction pruning recommended.	Decay beneath main crotch where lateral branches attach to trunk		No Value	1	2	3	3	9	9/5/12	C. Lippi	Power line(s)
1285	Oak, Laurel	34	NW	910	Phelps Ave	Woodland Ave	Palmer Ave	Fair	Fair	Canker/Decay - Appears Moderate	Sprawling Crown		Large Tree Routine Prune	Reduction pruning recommended.	Decay beneath main crotch where lateral branches attach to trunk		No Value	2	2	3	3	10	9/5/12	C. Lippi	Power line(s)
1286	Oak, Live	10	NW	996	Phelps Ave	Woodland Ave	Palmer Ave	Good	Good	Codominant Leaders w/o Included Bark			Small Tree Routine Prune	Structural pruning recommended. Now is the time to fix structural problems on a young tree.			No Value	1	1	1	1	4	9/5/12	C. Lippi	
1287	Oak, Laurel	25	NW	996	Phelps Ave	Woodland Ave	Palmer Ave	Fair	Fair	Canker/Decay - Appears Moderate			Large Tree Routine Prune	Central leader is decaying. There is some decay where lateral branches attach to trunk.	Reduction pruning recommended.		No Value	2	2	3	3	10	9/5/12	C. Lippi	
1288	Oak, Live	11	NW	996	Phelps Ave	Woodland Ave	Palmer Ave	Good	Good	Codominant Leaders w/o Included Bark			Small Tree Routine Prune	Structural pruning recommended. Now is the time to fix structural problems on a young tree.			No Value	1	1	1	1	4	9/5/12	C. Lippi	
1289	Oak, Laurel	22	NW	0	Phelps Ave	Woodland Ave	Palmer Ave	Fair	Fair	Fungal conk - ganoderma	Dead Branches < 10%	Codominant Leaders w Included Bark	Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	1	3	3	8	9/5/12	C. Lippi	
1290	Oak, Laurel	37	NW	0	Phelps Ave	Woodland Ave	Palmer Ave	Poor	Fair	Codominant Leaders w Included Bark	Canker/Decay - Appears Moderate	Dead Branches > 10%	Large Tree Routine Prune	Reduction pruning recommended.	Significant crown dieback	Fungal conk present but too old to identify.	No Value	2	2	3	3	10	9/5/12	C. Lippi	
1291	Oak, Laurel	24	NW	0	Phelps Ave	Woodland Ave	Palmer Ave	Good	Poor	Codominant Leaders w Included Bark			Large Tree Routine Prune	Reduction pruning recommended.	Consider cabling or heavy reduction pruning for this large codom leader		No Value	2	3	3	3	11	9/5/12	C. Lippi	
1292	Oak, Laurel	23	NW	0	Phelps Ave	Woodland Ave	Palmer Ave	Good	Good	Codominant Leaders w/o Included Bark			Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	2	3	3	9	9/5/12	C. Lippi	

Tree #	Species	DBH	Quadrant	Address #	On-street	From-street	To-street	Health Condition	Structure Condition	Observation1	Observation2	Observation3	Work1	Notes1	Notes2	Notes3	Urgency	Likelihood Failure	Size of Part	Target	Species	Hazard Score	Date	Arborist	Utilities
1293	Oak, Laurel	24	NE	0	Chestnut Ave	Temple Dr	Phelps Ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune				No Value	1	1	2	3	7	9/5/12	C. Lippi	
1294	Oak, Laurel	29	NE	0	Chestnut Ave	Temple Dr	Phelps Ave	Good	Fair	Codominant Leaders w Included Bark	Cavity/Decay - Appears Small	Dead Branches < 10%	Large Tree Routine Prune	Reduction pruning recommended.			No Value	1	2	2	3	8	9/5/12	C. Lippi	
1295	Oak, Laurel	41	NE	0	Chestnut Ave	Temple Dr	Phelps Ave	Fair	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 2 Prune	Reduction pruning recommended.	Large decayed on lower trunk south side. Branch dieback.	Fungal conks present. Consider removal.	No Value	2	3	2	3	10	9/5/12	C. Lippi	
1296	Oak, Laurel	25	NE	0	Chestnut Ave	Temple Dr	Phelps Ave	Fair	Poor	Codominant Leaders w Included Bark	Cavity/Decay - Appears Extensive	Dead Branches > 10%	Priority 2 Removal	Large decayed area with conks at base on west side decay extends up beyond the codom crotch area weakening it significantly.	Fungal conks and branch dieback.		No Value	2	3	2	3	10	9/5/12	C. Lippi	
1297	Oak, Live	20	NE	1650	Chestnut Ave	Temple Dr	Phelps Ave	Good	Good				Large Tree Routine Prune				No Value	1	1	2	1	5	9/5/12	C. Lippi	
1298	Oak, Laurel	17	NE	1630	Chestnut Ave	Temple Dr	Phelps Ave	Good	Poor	Cavity/Decay - Appears Extensive	Dead Branches < 10%		Large Tree Routine Prune	Extensive decay around base. If tree is to be retained, significant end weight reduction pruning is required			No Value	2	2	2	3	9	9/5/12	C. Lippi	
1299	Oak, Laurel	17	NE	1620	Chestnut Ave	Temple Dr	Phelps Ave	Good	Good				Large Tree Routine Prune				No Value	1	1	2	3	7	9/5/12	C. Lippi	
1300	Oak, Laurel	37	NE	1610	Chestnut Ave	Temple Dr	Phelps Ave	Poor	Poor	Cavity/Decay - Appears Extensive			Priority 2 Removal	Double trunk tree with extensive dieback and decay.	Removing the one decayed leader will make the other leader unstable. Both should be removed.	Tree #301 will also become unstable of tree #300 is removed	No Value	3	2	2	3	10	9/5/12	C. Lippi	
1301	Oak, Laurel	18	NE	1610	Chestnut Ave	Temple Dr	Phelps Ave	Poor	Poor	Cavity/Decay - Appears Extensive			Priority 2 Removal	Part of a triple tree cluster tree with extensive decay. See notes for tree#1300	Removing the one decayed leader will make the other leader unstable. Both should be removed.	Tree #1301 will also become unstable of tree #1300 is removed	No Value	3	2	2	3	10	9/5/12	C. Lippi	