Electric Underground Plan
The Plan

- Overall goal is to put the entire distribution system underground
- City issues $18 million in bonds to fund Phase 1
- This initial phase is comprised of two parts:
  - 9.3 miles of mainline feeders put underground at the Utility’s expense
  - $2.5 million in matching funds for neighborhoods that want to participate in the funding to put the neighborhood branch lines underground now
- The bonds in this phase would also cover the estimated cost of implementing the Automated Meter Reading
Citizen Survey

- 43% - Issue Bonds
- 13% - Neighborhood Assessments
- 3% - Increase Rates
- 2% - Increase Property Taxes
- 29% - Pay-as-you-go
- 6% - Forget Plan and Decrease Rates
- 3% - No Preference

61% Favor some accelerated program.
Base Data

• Currently have 17 Circuits (mainline feeders) coming out of 2 substations –
  – 11 out of the Canton Sub
  – 6 out of the Interlachen Sub
• 47 miles Mainline Feeders
• Currently have 351 Branch Lines covering 56.6 miles
Estimated Cost of Converting the Overhead System to Underground

- 600 amp mainline feeders $26,821,000
- 200 amp mainline feeders 9,678,000
- Front of property branch lines 11,149,000
- Back of property branch lines 19,039,000

Total Underground Cost $66,687,000

Note: The above excludes conversion of service drops.
Selection Criteria

- Reliability problems
- Ability to shift load
  - Circuit ties
  - Substation ties
- Tree impacts
- Other field conditions
- Number of customers impacted
- Cost
Initial Projects To Be Funded From Bonds

- Webster/N. Park Avenues
- Aloma Avenue
- Osceola Avenue
- Palmer Avenue
- Glenridge Way / Lake Sue Avenue
- S. Lakemont Avenue
- Temple Drive
- Neighborhood Branch Lines - TBD
Webster / N. Park Avenues

- Webster, Denning, Pennsylvania and N. Park
- Circuit - CA 003
- Estimated cost - $3,500,000
- 15,900 feet of overhead removed
- Benefiting 1,306 customers
- Outage Info – 29 momentary outages over a 5 month period
- 4 new circuit ties including one that connects the 2 substations
Webster / N. Park - Overhead Conductor to be removed
15,860 Feet - 3 miles
New underground
34,335 feet - 6.5 miles
3.5 miles $221.00 per foot
Feeder 14,800 - Distribution 19,455
Aloma Avenue

- Brewer to Lakemont
- Circuit – IN 150
- Project estimate - $923,250
- 2,600 feet of overhead removed
- Benefiting 1,106 customers
- Outage Info – 20 momentary outages over a 5 month period
- Part of completing a circuit tie that connects the 2 substations
Osceola Avenue

- From Knowles along New England to Osceola then north to Brewer
- Circuit – IN 150
- Project estimate - $1,421,500
- 4,000 feet of overhead removed
- Benefiting 1,106 customers
- Outage Info – 20 momentary outages over a 5 month period
- Part of completing a circuit tie that connects the 2 substations
Osceola Avenue
Palmer Avenue

- From Swoope along Interlachen, then along Georgia and Palmer to Temple
- Circuit – CA 014
- Estimated cost - $1,513,700
- 7,400 feet of overhead removed
- Benefiting 947 customers
- Outage Info – 27 momentary outages over a 5 month period
- Strengthens a circuit tie
Glenridge Way / Lake Sue

- From Glencoe along Lake Sue, then along Laurel Rd. and Glenridge to Lakemont
- Circuit – IN 159
- Project estimate - $1,411,200
- 6,900 feet of overhead removed
- Benefiting 866 customers
- Outage Info – 21 momentary outages over a 5 month period
- Part of completing a circuit tie that connects the 2 substations
S. Lakemont Avenue

- Lochberry to Glenridge Way
- Circuit – IN 159
- Estimated cost - $1,288,700
- 6,300 feet of overhead removed
- Benefiting 866 customers
- Outage Info – 21 momentary outages over a 5 month period
- Strengthens a circuit tie
Temple Drive

• Palmer to Howell Branch
• Circuit – IN 160
• Project estimate - $1,247,400
• 6,100 feet of overhead removed
• Benefiting 973 customers
• Outage Info – 14 momentary outages over a 5 month period
Summary of Mainline Feeders

- $11,305,500 using outside contractors
- 9.3 Miles of overhead removed
- Average $1.2 million per mile
- 6 new circuit ties
- 5,198 customers receiving direct benefit
- Directly benefiting 36% of customers
- Directly benefiting 69% of single family residential customers
- Indirectly benefiting all customers with added ability to shift load
Branch or Tap Lines

• Back Property Lines –
  – 219 lines
  – 3,485 parcels
  – 163,806 feet (31.0 miles)

• Front Property Lines –
  – 132 lines
  – 2,159 parcels
  – 135,270 feet (25.6 miles)
Assessment Program for Branch Lines

- Neighborhood contacts Electric Utility Director (EUD)
- EUD, along with ENCO determines minimum project size for Neighborhood Electric Assessment District (NEAD)
- EUD provides neighborhood with a preliminary cost per parcel
- At neighborhood request, city sends a letter to each property owner in the proposed NEAD providing details and requesting for them to vote
- If at least 2/3rds of the proposed NEAD votes in favor of the project, it will be engineered to determine an actual cost
Assessment Program – cont.

- If actual engineered cost is no more than 10% above the estimated cost, the project is approved, scheduled and constructed.
- If it is more than 10% above the estimated cost, the proposed NEAD will be asked to vote again.
- The City will fund 50% of the project costs excluding service drops and pane conversions.
- The NEAD will pay 50% of the project costs divided equally among the number of parcels benefiting.
- Conversion of service drops will be an additional cost to the property owner. The city will be responsible for making these conversions.
Assessment Program – cont.

• Back Property Lines – Average cost per parcel $5,463 (excluding service drop conversion)
• Front Property Lines – Average cost per parcel $5,164 (excluding service drop conversion)
• Staff proposal is for the City to pay 50% and for the NEAD to pay 50%
• Allow a payback period of 10 years with interest or a discount if paid in full up front
Prioritization of Branch Line Projects

• First come first serve except when coordination with a main feeder underground project will reduce the cost

• If the demand for branch line projects is less than the $2.5 million allocated, the excess funds will be used for main feeder projects

• If the demand for branch line projects exceed the $2.5 million allocated, we will advise the UAB and Commission to consider options of shifting funds from feeder project or borrowing additional funds to meet demand
# Service Drops and Panel Conversion

Most of the remaining overhead service drops are to 200 amp panels. The estimated average cost of these conversions are as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
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<tbody>
<tr>
<td>Contractor</td>
<td>$1,465</td>
</tr>
<tr>
<td>WPE Costs</td>
<td>1,822</td>
</tr>
<tr>
<td>Electrician (panel conv.)</td>
<td>1,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$4,287</strong></td>
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Financing Issues

• Done in connection with fixing variable rate debt on current bonds
• Repaid from reductions in annual capital budget and reduction in operating costs
• Spend down requirements
• Bond Rating
## Financing

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Mainline Feeders</td>
<td>$11,500,000</td>
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<tr>
<td>Neighborhood Matching</td>
<td>2,500,000</td>
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<tr>
<td>AMR Equipment</td>
<td>2,500,000</td>
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<tr>
<td>Other Capital</td>
<td>1,500,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$18,000,000</strong></td>
</tr>
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</table>
Staff Recommendations

• Adopt the plan as presented
  – Complies with the Citizens Survey
  – Complies with the Strategic Plan
  – Recommendation for approval from the Utilities Advisory Board
  – Delivers on promise made when we bought the system

• Authorize staff to begin the financing process
Winter Park Electric
Delivering as Promised