WELCOME!

TSPE DFW MID-CITIES

Check-in/Networking - 11:30AM - 12:00PM
Announcements / Lunch Service - 12:00PM - 12:15PM
Speaker Presentation - 12:15PM - 1:00PM

January Chapter Meeting
Thank You to Our Sponsors

Interested in becoming a DFW Mid-Cities Chapter Sponsor? Please visit our website at www.tspedfwmidcities.org
Today’s Meeting

Tour of the DFW Mid-Cities:
City of Irving

The Economic Development Director Scott Connell
Public Works/Traffic & Transportation Director Dan Vedral

Presentation topics include: the $180 Million Irving Music Factory Project, the Convention Center Hotel Project, the Hidden Ridge Project (Verizon), the Water Street Project, and the Pavement Management Program (Road to the Future).
Upcoming Events

February Meeting - February 24th - 11:30 AM

DISCOVER ENGINEERS WEEK
FEBRUARY 19-25, 2017

MATHCOUNTS - February 25th
IRVING

Road to the Future

$100 Million in 5 Years

Rebuild Repair Renew

TSPE DFW Mid-Cities Chapter
January 19, 2017
Overview

- Team
- Data Collection
- Background
- Program Benefits
- Street Types
- Pavement Condition Index
- System Wide Status / Rating
- Maintenance Strategies / Costs
- Cost Scenarios (Options 1-4)
- 5 Year Outlook: PCI Versus Annual Cost
- Next Two Years
- Transportation and CIP Upcoming Projects
- Communication Tools
- Challenges and Next Steps
Team

- City Manager’s Office
- Transportation
- CIP Engineering
- Water Utilities
- Finance
- Communications
Data Collection

- **Positioning - GPS**
  Every ARAN is equipped with a GPS and is integrated with other subsystems so that if the receiver cannot lock on enough satellites to determine its position, the ARAN DMI and the ARAN Inertial Reference System will fill in the gaps.

- **Roughness**
  The Laser SDLP is a longitudinal profile measurement system that provides road profile data capture and real-time roughness index calculation using a combination of high-speed lasers and accelerometers.

- **Textured**
  Smart Texture utilizes high frequency lasers to measure the mean profile depth of road surface macrotexture.

- **Positioning - DMI**
  The Distance Measuring Instrument measures ARAN chainage and linear distance travelled. Every ARAN is equipped with a GPS and is integrated with other subsystems so that if the receiver cannot lock on enough satellites to determine its position, the ARAN DMI and the ARAN Inertial Reference System will fill in the gaps.

- **Right-of-Way Video**
  The ARAN can be outfitted with as many as six HDTV cameras which captures right-of-way images allowing you to virtually view the road from the comfort and safety of your office.

- **Rutting**
  The Laser Transverse Profiler uses dual scanning lasers to accurately measure the transverse profile of the road with 1280 points over 4 meters.

- **Pavement Distress**
  With the ARAN's pavement imaging subsystem, planar-view digital pavement images are recorded directly to disk for 100% of the driven lane.
Background

- Inventoried existing street assets (550+ centerline miles of streets; 1,400+ lane miles)
- Developed Street Rating Geographical Data Base (GIS)
- Develop cost scenarios for long term maintenance of the roadway infrastructure network
Program Benefits

- Pavement condition assessment
- Systematic and repeatable method
- Calculate Pavement Condition Index (PCI) for each street
- Tool to assist in prioritization of Street Maintenance Operations and CIP Projects
- Goal is proactive asset management
Street Types

- 274 miles, 41.5%
- 151 miles, 22.9%
- 138 miles, 20.9%
- 97 miles, 4.7%
- 87 miles, 3.2%
- 50 miles, 7.6%
- 1 miles, 0.2%

- Local
- Minor Arterial
- Major Collector
- Major Arterial
- Minor Collector
- Principal Arterial
- Other
Pavement Condition Index

Distress Type
Defined by ASTM E1778

Distress Severity
Low, Moderate, High

Distress Quantity
Measured

PCI
0 to 100 Range

<table>
<thead>
<tr>
<th>PCI Score</th>
<th>Streets Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-95</td>
<td>“A”</td>
</tr>
<tr>
<td>95-85</td>
<td>“B”</td>
</tr>
<tr>
<td>85-70</td>
<td>“C”</td>
</tr>
<tr>
<td>70-50</td>
<td>“D”</td>
</tr>
<tr>
<td>50-0</td>
<td>“E”</td>
</tr>
</tbody>
</table>
System Wide Status / Rating

Street Degradation Curve (Grade)

- **A**: Minimal Maintenance
- **B**: Proactive Maintenance
- **C**: Major and Proactive Maintenance
- **D**: Various Maintenance Treatments Provide Temp Relief, Requires Full Reconstruction
- **E**: Various Maintenance Treatments Provide Temp Relief, Resurfacing

- **2015**: "C" Condition Expected to Be "D" Condition in 3 years
- **2020**: Various Maintenance Treatments Provide Temp Relief
- **2025**: Requires Full Reconstruction

(Years)

(PCI)
## Maintenance Strategies / Costs

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost per Lane Mile</th>
<th>Life (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concrete Streets with Asphalt Surface &quot;B&quot; &amp; &quot;C&quot;</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crack Seal</td>
<td>$2,000</td>
<td>3 - 5</td>
</tr>
<tr>
<td>Mud Jack</td>
<td>Varies</td>
<td>5 - 7</td>
</tr>
<tr>
<td>Pavement Rejuvenation</td>
<td>$11,000</td>
<td>5 - 7</td>
</tr>
<tr>
<td>Slurry Seal</td>
<td>$13,000</td>
<td>5 - 7</td>
</tr>
<tr>
<td>Micro Surface</td>
<td>$19,000</td>
<td>5 - 7</td>
</tr>
<tr>
<td><strong>&quot;C&quot; Street</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Depth Repair Asphalt</td>
<td>$50,000</td>
<td>5 - 7</td>
</tr>
<tr>
<td>Partial Reconstruction Concrete</td>
<td>$114,000</td>
<td>10 - 12</td>
</tr>
<tr>
<td><strong>Asphalt &quot;D&quot; &amp; &quot;E&quot;</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehabilitation (Street Summer Overlay Program)</td>
<td>$150,000</td>
<td>10 - 12</td>
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<tr>
<td>Restoration</td>
<td>$165,000</td>
<td>18 - 20</td>
</tr>
<tr>
<td>Concrete Full Reconstruction</td>
<td>$1,100,000</td>
<td>20 + Years</td>
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</table>
Pavement Management Decision Tree
Multiple cost scenarios (33 total) were tested

The purpose was to stress the financial model to see how it responded to various maintenance methods

Stressing the model allowed us to see where the most benefit could be gained with respect to funds
Cost Scenario #1 Options

Budget Scenario Results Comparison

- No Funding
- $1.2 M (Maint) $1 M (Rehab)
- $1.2 M (Maint) $2 M (Rehab)
- $1.2 M (Maint) $3 M (Rehab)
- $1.2 M (Maint) $4 M (Rehab)
- $1.2 M (Maint) $5 M (Rehab)

Rebuild  Repair  Renew
Cost Scenario #2 Options
Cost Scenario #3 Options
Cost Scenario #4 Options
5 Year Outlook: PCI Versus Annual Cost

Cost Options (1-33)
Financial Overview: $100 Million in 5 Years

<table>
<thead>
<tr>
<th>FY</th>
<th>Original 5-Year Plan</th>
<th>Additional Capacity</th>
<th>1/2 Cent and 1 Cent</th>
<th>Debt supported by 1 cent</th>
<th>Total by Fiscal Year</th>
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</thead>
<tbody>
<tr>
<td>16-17</td>
<td>6,100,000</td>
<td>7,500,000</td>
<td>1,100,000</td>
<td>22,500,000</td>
<td>1,100,000</td>
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<tr>
<td>17-18</td>
<td>10,100,000</td>
<td>7,500,000</td>
<td>2,200,000</td>
<td>22,500,000</td>
<td>38,300,000</td>
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<td>18-19</td>
<td>10,500,000</td>
<td>7,500,000</td>
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<td></td>
<td>17,600,000</td>
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<tr>
<td>19-20</td>
<td>3,000,000</td>
<td>7,500,000</td>
<td></td>
<td></td>
<td>18,000,000</td>
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<tr>
<td>20-21</td>
<td>7,000,000</td>
<td>7,500,000</td>
<td></td>
<td></td>
<td>10,500,000</td>
</tr>
<tr>
<td>21-22</td>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>14,500,000</td>
</tr>
</tbody>
</table>

Note - Bonds are typically sold in May/June with cash received June/July
Next Two Years

- In the next 2 years the Public Works Team are diligently working to prepare for the financial infusion into the street system including:
  - Conducting design in-house for projects that have meet certain design criteria
  - Evaluating projects that may need outside design
  - Prioritizing projects that design is completed or will be completed in the interim.
  - Bidding out projects that can be underway in the interim
  - Using current funds to begin maintenance strategies
Transportation Upcoming Projects FY 16-17

For FY 16-17 Transportation estimates completing the milling and overlay of portions of the 13 streets listed below.

- Holland Dr.
- Mosswood Ln.
- Glenbrook Dr.
- MacArthur Blvd.
- Britain Rd.
- Hanover Ln.
- Pleasant Run Rd.
- Durango Ct.
- Crestview Cir.
- Keyhole St.
- Summit Dr.
- John Smith Dr.
- Northridge Dr.
CIP Upcoming Projects FY 16-17

- Design Neighborhood Streets
- Design Major Streets
- Bridge Reconstruction for SH 183 Drainage
- Neighborhood Street Reconstruction
- Glenmore & Shepherd Street Reconstruction
- Hard Rock & Pioneer Reconstruction
- South Nursery
Communication Tools

- City Spectrum
- ICTN
- City Website
- Social Media
- City Council Meetings, Operations Update, Transportation and Natural Resources Committee (TNR)
- Reading File
- Neighborhood News
- Neighborhood Roundtable
- Nextdoor
Challenges

- Coordination of design and procurement
- Securing of outside design consultants
- Personnel needs related to project management
- Inter-departmental coordination
- Unknown system events (such as water pipeline breaks)
Next Steps

- Finalize maintenance strategies
- Identify priority projects
- Utilize Communication Tools
- Present to Transportation and Natural Resources Committee Road to the Future Phase II (anticipated Spring TNR)
  - Staffing Levels
  - Long range funding strategies
Contact Information:

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Director Traffic & Transportation
City of Irving, Texas
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Irving Convention Center Hotel

- Westin Hotels and Resorts brand
- Proposed hotel will include:
  - 350 guest rooms
  - 10,000 square foot ballroom
  - 16,000 square feet of meeting space
  - 840 space parking garage
- Budget – $125 million
- Construction expected to begin in mid-2017
- Opening expected in late-2018
Irving Music Factory

- $173 million project includes an 8,000 seat Live Nation concert venue, eight-screen Alamo Drafthouse, office, retail and restaurant space
- 17 acres; 250,000sf retail, 100,000sf office
- First concert Labor Day; Completion by late 2017
Texican Hotel

- 134-room boutique hotel
- Across from the Irving Convention Center
- Construction begin in 2017 – Open in 2018
McKesson

- Purchased 525,000 square foot office space – highways 114 and 161
- Investment of $23 million in renovations
- More than 1,500 employees at an average salary of $79,000
- Renovations complete by late 2016
- Relocating, hiring employees 2017
Pioneer Natural Resources

- Anchor site of the Hidden Ridge development area
- 1,000,000 square feet of office space
- 1,300 total employees
- Finalizing building and site design
- Begin mid 2017, Complete by end of 2020

Source: Dallas Morning News
Verizon/ Hidden Ridge

- Development on MacArthur/Hidden Ridge/Green Park
- Commence 2017; Complete in 2020
- Hidden Ridge will include:
  - 1.75 million square feet of office space
  - 1,000+ residential units
  - 50-60,000 square feet retail space
  - 100-150 room hotel
  - DART Light rail station
Water Street

- Water Street Development includes:
  - 300-350 luxury apartments
  - 60,000+ square feet of retail shops and restaurants
  - Park for special events
  - Access to Lake Carolyn

- Project to be completed by late 2017

Source: Dallas Morning News
Delaware Creek

- Heritage Crossing Land Bank project
- Phase I single-family homes in Heritage Crossing
- 40 two-story homes
- Mid-$200,000’s
- Lots to be delivered to builder early 2017

Sample housing type – actual homes built may differ
Irving Business Innovation Center

- Create a business incubator in the former Central Irving Library – second floor 26,000 sf
- Will allow start-ups to flourish; support
- Indigo Group contracted to manage/program
- Renovations underway, complete March 1
- Incubator slated to open in spring 2017
Irving Blvd./Second Street Reconstruction

- Improvements to Irving Boulevard and Second Street through downtown
- New roadway, infrastructure, on-street parking, bike lanes, landscaping, lighting
- Investigating potential use of TIRZ #2 Revenues to leverage construction cost
- Design, engineering and bidding to take approximately 36 months
Heritage Crossing Future Tasks
“Maintaining Momentum”

- Connectivity and Gateway projects
- Branding/Wayfinding/Signage
- Heritage Park improvements
- Strategic disposition of city-owned property for catalytic projects
  - Heritage residential/mixed-use (across from senior center)
  - Delaware Creek mixed-use (Behind Long John Silvers)
    - Lumberyard Tract (East of clock tower)
Conclusion

- Irving’s location is unbeatable
- Irving repeatedly is named one of the top cities for jobs in the nation
- Heritage Crossing redevelopment underway
- 2016 building permit valuation $787 million, higher than any 12-month total in more than 30 years
Thank you

Scott Connell
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