MAPPING AND SCORING PLANNED PROJECTS

Michael Chamberlain
TxDOT, TPP – Data Management
## Table of Contents

<table>
<thead>
<tr>
<th>#</th>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scope</td>
<td>3-4</td>
</tr>
<tr>
<td>2</td>
<td>Tools</td>
<td>5-6</td>
</tr>
<tr>
<td>3</td>
<td>Mapping</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Project Scoring</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Display</td>
<td>9-10</td>
</tr>
<tr>
<td>6</td>
<td>Update Diagram</td>
<td>11</td>
</tr>
<tr>
<td>7</td>
<td>Wrap Up</td>
<td>12-14</td>
</tr>
</tbody>
</table>
Scope

- TxDOT operates over 80,000 miles of state maintained highways and the state of Texas has over 313,000 miles of public roads.

  - **Standard Reports**

- Each year TxDOT spends more than 9 billion dollars on transportation

---

**TOTAL DISBURSEMENTS** — $9.650 Billion

- **Plan It**
  - $1,448.0 million
  - 15%

- **Manage It**
  - $298.1 million
  - 3%

- **Maintain It**
  - $3,834.5 million
  - 40%

- **Use It**
  - $179.6 million
  - 2%

- **Build It**
  - $2,663.4 million
  - 27%

---

**Other Agency Expenditures/Transfers**

- Department of Public Safety: $698.8 million
- Transfers to Other Agencies: $129.3 million
- Other Agency Expenditures: $112.6 million

---

*includes all expenditures to appropriated State Highway Fund.
At any time there are 9,000 - 10,000 projects in the TxDOT planning pipeline.
Traditionally, the tools used to manage planned projects were:

- Labor intensive
- Non spatial
- Limited availability
- Relevant for a short time
In an attempt to modernize the way TxDOT manages planned projects we implemented the following:

- Mapping planned projects
- Scoring system to prioritize projects
  - Strategic Goals
  - Funding Availability
  - Project Readiness
- Display system to disseminate results to the widest audience
- Nightly refresh schedule
Mapping

- ArcGIS Desktop
  - Local geodatabase (import legacy data)
  - LRS tools to locate planned projects on the highway network
  - Spatial operations against the following:
    - Crashes (5 years, fatal and non-fatal)
    - INRIX speed data
    - Top 100 congested segments
    - Energy sector counties
    - Freight network
  - Python scripting to automate the process
## Project Scoring

### Strategic Goals – GIS Based
- Safety – Crash data
- Congestion – LOS & Top 100
- Connect Texas Communities
  - Functional classification
  - Freight Network/Trunk System
  - Truck volumes
  - Addresses corridor gap
  - Alternative Modes
- Best-In-Class State Agency
  - MTP/RTP/Strategic Corridor alignment
  - Cost/VMT
- District Strategic Priority

### Funding Availability
- Category 1-12 committed funding
  - As a percentage of construction cost

### Project Readiness
- Phase of project development
  - Scheduled let date
  - Environmental status
  - Right of Way status
  - Plans, Specifications & Estimate status

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;75</td>
<td>Tier 1</td>
</tr>
<tr>
<td>50–75</td>
<td>Tier 2</td>
</tr>
<tr>
<td>&lt;50</td>
<td>Tier 3</td>
</tr>
</tbody>
</table>
Display

- SharePoint (non spatial, editable)
  - Wide audience
  - Capture project readiness information
  - District overrides for local input
  - Display scoring results and ranking
  - Flexible, programmable
Display

- ArcGIS Online
  - Widely available (the internet)
  - Updated daily
  - Used by multiple applications
  - Flexible, programmable
Update

Legacy System → Project Mapping → Data Driven Project Scoring → Repeat Daily

- Update Map Service
- District MPO Input
- Synchronize SharePoint
- Calculate Final Scores

Project Scoring process:
1. Legacy System
2. Project Mapping
3. Data Driven Project Scoring
4. Repeat Daily
Wrap Up

- This project cut across traditional business units and provided a shared work space to evaluate projects against common criteria. That's important. It also highlighted the need for greater coordination between planners, designers, and financial staff.

- At the end of the day the project scoring and mapping project provided a previously unavailable operational view of TxDOT's planned projects. That view will lead to better decisions and improve the quality of the planning process at TxDOT.
Helpful links to TxDOT data:

- Planning Division page on TxDOT.gov
- Statewide Planning Map
- Standard Reports
- Roadway Inventory
- Planned Projects
Questions

Contact Info:
Michael Chamberlain
Director, TPP – Data Management
512.486.5054
Michael.Chamberlain@txdot.gov