Welcome

Building Trust from Controversy to Consensus

October 15, 2018
• **Jason Zang, P.E.**
  Assistant District Executive, District 11-0, Pennsylvania Department of Transportation

• **Darryl Phillips, P.E., PTOE**
  Senior Transportation Engineer, WSP USA

• **Jennifer Threats**
  Senior Communication Specialist, McCormick Taylor
Interstate 376

- 14.2 miles
- Fort Pitt Bridge to Turnpike
- Carries 165,000 vpd
Squirrel Hill Tunnel

- Opened 1953
- 4,225 feet long
- 29’-6” each direction
- Two lanes each direction
- Capacity 3500 VPH each way
- Daily flow 93,000 vehicles
• Congested 6+ hours per day

<table>
<thead>
<tr>
<th></th>
<th>Westbound</th>
<th>Eastbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance</td>
<td>Churchill to tunnel</td>
<td>Forbes to Tunnel</td>
</tr>
<tr>
<td></td>
<td>4.3 miles</td>
<td>2.9 miles</td>
</tr>
<tr>
<td>Off-Peak</td>
<td>5 minutes</td>
<td>3 minutes</td>
</tr>
<tr>
<td>Peak</td>
<td>20-40 minutes</td>
<td>14-28 minutes</td>
</tr>
</tbody>
</table>
### Table 8: Top 10 Worst US Corridors

<table>
<thead>
<tr>
<th>RANK</th>
<th>CITY</th>
<th>ROAD</th>
<th>FROM</th>
<th>TO</th>
<th>WORST PEAK PERIOD</th>
<th>AM PEAK AVERAGE SPEED (MPH)</th>
<th>PM PEAK AVERAGE SPEED (MPH)</th>
<th>TOTAL HOURS OF DELAY (P.P.P.A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New York, NY</td>
<td>I-95 Eastbound</td>
<td>Exit 10/Alexander Hamilton Brdg W</td>
<td>Exit 6A/278</td>
<td>PM</td>
<td>16.32</td>
<td>10.80</td>
<td>118</td>
</tr>
<tr>
<td>2</td>
<td>Chicago, IL</td>
<td>I-90/I-94</td>
<td>Exit S3C/I-85</td>
<td>Exit 34B/Lake Ave E</td>
<td>AM</td>
<td>24.18</td>
<td>25.77</td>
<td>98</td>
</tr>
<tr>
<td>3</td>
<td>Chicago, IL</td>
<td>I-290 Eastbound</td>
<td>Exit 15A/I-88</td>
<td>Exit 26B/Paulina St</td>
<td>AM</td>
<td>31.33</td>
<td>29.75</td>
<td>89</td>
</tr>
<tr>
<td>4</td>
<td>Los Angeles, CA</td>
<td>I-10 Eastbound</td>
<td>Exit 3A/S Figueroa St</td>
<td>Exit 15/I-110</td>
<td>PM</td>
<td>38.21</td>
<td>22.61</td>
<td>74</td>
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<tr>
<td>5</td>
<td>Pittsburgh, PA</td>
<td>I-376 Eastbound</td>
<td>Exit 85/Academy St</td>
<td>Exit 77/Edgewood</td>
<td>AM</td>
<td>37.26</td>
<td>29.93</td>
<td>60</td>
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<tr>
<td>6</td>
<td>Chicago, IL</td>
<td>E-80 Southbound</td>
<td>Exit 30A/W Ogden Ave</td>
<td>Exit 43C/Montrose Ave</td>
<td>AM</td>
<td>23.88</td>
<td>29.04</td>
<td>88</td>
</tr>
<tr>
<td>7</td>
<td>New York, NY</td>
<td>E 34th St</td>
<td>FDR Dr</td>
<td>5th Ave</td>
<td>AM</td>
<td>5.81</td>
<td>5.79</td>
<td>59</td>
</tr>
<tr>
<td>8</td>
<td>New York, NY</td>
<td>Belt Pkwy E</td>
<td>Exit 3/I-278</td>
<td>Exit 17/Cross Bay Blvd</td>
<td>PM</td>
<td>47.00</td>
<td>28.83</td>
<td>57</td>
</tr>
<tr>
<td>9</td>
<td>New York, NY</td>
<td>E 42nd St</td>
<td>FDR Dr</td>
<td>7th Ave</td>
<td>PM</td>
<td>6.31</td>
<td>5.81</td>
<td>56</td>
</tr>
<tr>
<td>10</td>
<td>Boston, MA</td>
<td>I-93 Southbound</td>
<td>Exit 20B/Albany St</td>
<td>Exit 8/Furnace Brook Pkwy</td>
<td>PM</td>
<td>39.61</td>
<td>25.10</td>
<td>55</td>
</tr>
</tbody>
</table>
What is Ramp Metering?
Comprehensive Study

- Review of Best Practices
- Identification of Congested Freeways
- Criteria for Ramp Management Implementation
- Evaluation of I-376 Corridor
- Costs and Benefits of I-376 Ramp Metering
- Three options:
  - Meter six interchanges
  - Close three interchanges and meter three
  - Close one interchange
Access control in Parkway East plan

August 14, 2012 12:00 am
By Jon Schmitz / Pittsburgh Post-Gazette

Closing some on-ramps and installing traffic signals on others may be the key to easing congestion and reducing crashes on the Parkway East.

The Pennsylvania Department of Transportation has budgeted $5 million for design and construction of a ramp metering system similar to those that have improved traffic flow and safety in several other U.S. cities.

On a metered ramp, a red-green traffic signal allows one vehicle at a time to enter the highway. The timing of the signals can be adjusted based on traffic volumes, but they typically allow a vehicle to pass every few seconds. In nonpeak periods, they can be turned off.

"We do have intentions of ultimately down the road implementing some sort of access control to the parkway in order to improve the safety and mobility of the road," said PennDOT District 11 executive Dan Cessna.

"Any of those changes will involve public input," he said. "Obviously, it's a volatile issue."
Congestion indigestion: Some drivers would be barred from the parkway

August 20, 2012 12:00 AM

Pittsburgh Post-Gazette
Residents oppose plan for restrictions on Parkway East on-ramps

TOM FONTAINE AND TORY N. PARRISH | Friday, Nov. 16, 2012, 9:24 p.m.

"The elected officials of the City (of Pittsburgh), Swissvale, Edgewood, Forest Hills, Wilkinsburg and (Allegheny) County Council as well as the Turtle Creek Valley (Council of Governments), CONNECT and the Regent Square Civic Association are working together to represent our neighborhoods to garner support to have PennDOT reconsider spending $5 million on this study which will have a negative impact," said Pat Schaefer, Edgewood Council president.

"It's unfair. Why should we be penalized?" Keebler said.

"My first reaction was that I wondered about whether the benefits of this are going to be evenly distributed," he said in an interview. "The general reaction I got from other elected officials there was that this would be a negative."

Parkway East Plan Concerns Regent Square Leaders

Input is sought on a plan that could include increased traffic, pedestrian safety and negative business impacts on South Braddock Avenue, among other issues.

By Zandy Dudiak | Nov 19, 2012 3:25 am ET | Updated Nov 19, 2012 5:00 am ET
Please know that I too am alarmed about the potential effects of this project.
What would you do?

Have you experienced controversy early in a project?
How was it addressed?
What steps did you take?
Did the project move forward?
Were there lingering issues afterwards?
The Department Responds

Couldn’t hide
Could not move ahead against community wishes
The need to do something remained as strong as ever
PennDOT pulls plan to curb ramp access on Parkway East

November 21, 2012 12:11 am
By Karen Langley / Pittsburgh Post-Gazette

“Certainly, we hear the residents loud and clear about access to the parkway,” said Dan Cessna, chief engineer for PennDOT’s District 11, which includes Allegheny, Beaver and Lawrence counties.
Comprehensive study

- I-376 from downtown Pittsburgh to Turnpike
- Intersecting Arterials
- Parallel Arterials
- All modes- Auto, freight, transit, pedestrians, bikes.
## Technical Approach

1. **Gathering Information**
   - Data Collection & Public Engagement
   - Traffic Counts
   - O/D Study

2. **Understanding the Corridor**
   - Modeling & Traffic Analysis
   - Network Modeling
   - Capacity Analysis

3. **Identifying Needs**
   - Concept of Operations
   - Identification of Needs
   - Define Project

4. **Developing Solutions**
   - Innovative Ideas
   - Develop Conceptual Plans
   - Develop Cost Estimates

5. **Implementing Solutions**
   - Environmental, Design & Funding
   - Prioritize
   - Design and Build
Grounded in Public Input

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gathering Information</td>
<td>Stakeholder Interviews, Website/Online Survey</td>
</tr>
<tr>
<td>2</td>
<td>Understanding the Corridor</td>
<td>Public Meeting</td>
</tr>
<tr>
<td>3</td>
<td>Identifying Needs</td>
<td>Define Project Based on Public/Stakeholder Input</td>
</tr>
<tr>
<td>4</td>
<td>Developing Solutions</td>
<td>Stakeholder Group – Plans and Estimates, Prioritize after Input</td>
</tr>
<tr>
<td>5</td>
<td>Implementing Solutions</td>
<td>Stakeholder Group – Finalize Projects Based on Input, Design and Build</td>
</tr>
</tbody>
</table>
Over 80 individuals invited representing:

- Adjacent Municipalities (11)
- Allegheny County
- City of Pittsburgh
- Other Stakeholder Groups (19)

Over 25 interviews were held

Discussion topics included:

- I-376 Likes/Dislikes
- Alternate Routes
- Travel by Bus, Bike and Walking
Nearly 2,200 completed surveys and shared over 17,000 interests and concerns

Survey Visitors: 2,797
Completed Surveys: 2,179
**Survey & Stakeholder I-376 Common Themes**

### Safety
- Consider accident management techniques
- Provide consistent merge points and ramp lengths

### Squirrel Hill Tunnels
- Widen tunnels
- Bypass tunnels
- Use three lanes in one direction during rush hour in the tunnels

### Need More Transit
- Add more park-and-ride lots
- Provide more transit alternatives
- Extend East Busway

### Pedestrians and Bikes
- Extend trail to Frick Park
- Connect Oakland to Eliza Furnace Trail
- Improve sidewalks under Parkway along Braddock Avenue

### Congestion
- Include HOV lanes
- Utilize congestion pricing
- Widen the roadway/add lanes
- Consider completing the Mon/Fayette Expressway
- Improve variable messaging to include real-time updates
- Offer carpooling incentives
- Consider closing ramps during peak hours
- Maintain existing interchange access

### Speed
- Implement an education campaign related to maintaining speed and merging
- Speed limit too low
Two Public Meetings

• Different Locations
• Open House & Presentation
Traffic Studies:

- Traffic counts
- Geometric evaluation
- Capacity analysis
- Network modeling
- Network simulation
Needs:

- The Parkway East is congested
- Alternate routes are congested
- Crash rates are above average
- Parkway East does not meet existing design criteria
- Parkway East travel times are unreliable
- Multimodal transportation options are limited
Brainstorming
200 alternatives based on review of stakeholder comments and problems identified during technical analysis
Qualitative Analysis based on MOEs
Measures of Effectiveness:

- Ways to measure how improvements meet the goals of the project
- Evaluation of Cost, Benefits, and Constraints
Stakeholder Meetings

- Representing: Local Access, Alternative Transportation Modes, Public Works, Regional Economic Development, Transportation Planning, Congestion Management
- Meeting 1: Measures of Effectiveness, Improvement Concepts by Area, Comment Card

### Parkway Corridor

<table>
<thead>
<tr>
<th>Improvement Concept Reference No.</th>
<th>Reduction in Parkway Congestion</th>
<th>Reduction in Arterial Congestion</th>
<th>Improvement in Travel Time Reliability</th>
<th>Reduces Fuel Consumption/ Emissions</th>
<th>Enhances Travel Options</th>
<th>Improves Safety</th>
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<tbody>
<tr>
<td>Congestion pricing</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck limits</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managed lanes</td>
<td>X(2)</td>
<td>X(2)</td>
<td>X</td>
<td></td>
<td></td>
<td>X(2)</td>
</tr>
<tr>
<td>Extra tunnel lanes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ramp management</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional VMS signs</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>
Initial Screening:

- Qualitative
- Rank each MOE from 1-10
- Weight MOEs based on importance
- Identify fatal flaws
- Consider potential benefit-cost ratio
- Consider Stakeholder Input
- Determine options to advance
Evaluating the concepts:

- 62 concepts advanced from Phase 1
- Evaluated in detail
  - Line and grade plans
  - Traffic simulation
  - Safety benefits
  - Emissions
Selecting the projects:

- 82+ evaluated
- Benefit-cost ratio
- High construction costs
- Benefits constrained by tunnel impacts
- 25 were determined to be feasible
- Similar projects grouped together for consideration
What would you do?

Have you shared complex/multiple projects for public input?
How did you structure presentation?
How did you gather input?
How did you prioritize?
Did the project move forward?
Presented to Stakeholders:

- **Corridor-wide**
  - Active Traffic Management (ATM)

- **Interchange level**
  - Bates, Squirrel Hill, Edgewood/Swissvale, Wilkinsburg, Churchill

- **Arterial and local roadways**
  - Signal Retiming and Upgrades

- **Multimodal**
  - Park and Ride, Bike facilities, Hard Shoulder Running (new)
What is ATM?

Variable speed limits

Lane Controls

Variable Message Signs

Concepts 1, 2 and 4
Potential Improvements

Corridor-Wide Improvements
Active Traffic Management

• Lane management
• Additional variable message signs (VMS)
• Variable speed limits
• Ramp management for incidents and emergencies
What can ATM do?

- Advanced queue warning
- Speed harmonization
- Dynamic junction control
- Dynamic lane closure
- Dynamic speed limits
- Advise and redirect traffic on ramps
Active Traffic Management

What can ATM do?

• Advanced queue warning
• Speed harmonization
• Dynamic junction control
• Dynamic lane closure
• Dynamic speed limits
• Advise and redirect traffic on ramps
Stakeholder Group

Stakeholder Meetings

- Meeting 2: Phase 2 Evaluation, Comment Card for each Concept, and Sticky Dot Exercise
- Additional concept proposed

<table>
<thead>
<tr>
<th>CORRIDOR ACTIVE TRAFFIC MANAGEMENT (ATM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros/Cons</td>
</tr>
<tr>
<td>This project would benefit the corridor.</td>
</tr>
<tr>
<td>There are minimal anticipated concerns/challenges associated with this project.</td>
</tr>
<tr>
<td>Project concerns could be overcome with further engineering, environmental consideration and/or public engagement.</td>
</tr>
<tr>
<td>Project benefits outweigh the anticipated challenges.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Candidate Projects</th>
<th>Green</th>
<th>Orange</th>
<th>Yellow</th>
<th>Total Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Traffic Management</td>
<td>3</td>
<td>9</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Lengthen Eastbound On-Ramp at Bates</td>
<td>11</td>
<td>3</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Eliminate/ImproveWeave at Squirrel Hill</td>
<td>13</td>
<td>1</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>West Swissvale Ave Traffic Control</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>Monongahela Ramp Traffic Control</td>
<td>9</td>
<td>7</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Eastbound Ramp Consolidation at Edgewood/Swissvale</td>
<td>10</td>
<td>2</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Single-Point Interchange at Wilkinsburg</td>
<td>0</td>
<td>7</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Control Eastbound Weave</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Park and ride Facilities</td>
<td>9</td>
<td>8</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Bike Facilities</td>
<td>1</td>
<td>6</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>Signal Retiming and Upgrades along Arterials</td>
<td>11</td>
<td>5</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>76</td>
<td>63</td>
<td>51</td>
<td>187</td>
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</tbody>
</table>
Joint Meeting

- Meeting 3: Projects to be Advanced – Active Traffic Management included

Active Traffic Management

- Benefits the Corridor: 13 agree
- Minimal Concerns/Challenges: 11 agree
- Concerns Could Be Overcome with further studies and/or outreach: 13 agree
- Benefits Outweigh Challenges: 12 agree

Active Traffic Management

- Benefit Cost Ratio: High
- User Benefits: High
- Safety Benefits: High
- Reduces Emissions: High
- Implementation: Medium Term

Estimated Cost: $9.5 M

Implementation could be phased.
Not part of formal project outreach

- Informal forum sponsored by WPSD
- Municipal, non-profit and business sectors
- Edgewood, Forest Hills, Swissvale and Wilkinsburg
- Strengthening dialogue on challenges and opportunities facing these communities
“I’d like to compliment PennDOT on the open and transparent process in which they have conducted this study.”
Thank You!
Purpose:
To improve traffic flow, improve safety, and improve multimodal travel options in the Parkway East Corridor Transportation Network, located in Allegheny County, Pennsylvania, which consists of the Parkway East (I-376) from the Fort Pitt Bridge to the Pennsylvania Turnpike/US 22 interchange, and also includes parallel and intersecting arterial roadways.
Active Traffic Management

What is ATM?
Active Traffic Management (ATM)
Purpose and Need

- Conducted in accordance with PennDOT Publication 319
- Developed based upon:
  - Technical analysis
  - Public comment
- Basis of evaluation of alternatives
A proven, low cost solution

Table 1-1: Summary of Ramp Metering Safety Benefits

<table>
<thead>
<tr>
<th>Location</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland, OR</td>
<td>43% reduction in peak period collisions.</td>
</tr>
<tr>
<td>Minneapolis, MN</td>
<td>24% reduction in peak period collisions.</td>
</tr>
<tr>
<td>Seattle, WA</td>
<td>39% reduction in collision rate.</td>
</tr>
<tr>
<td>Denver, CO</td>
<td>50% reduction in rear-end and side-swipe collisions.</td>
</tr>
<tr>
<td>Detroit, MI</td>
<td>50% reduction in total collisions and 71% reduction in injury collisions.</td>
</tr>
<tr>
<td>Long Island, NY</td>
<td>15% reduction in collision rate.</td>
</tr>
</tbody>
</table>

Table 1-2: Summary of Ramp Metering Mobility and Productivity Benefits

<table>
<thead>
<tr>
<th>Location</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland, OR</td>
<td>A 173% increase in average travel speed.</td>
</tr>
<tr>
<td>Minneapolis, MN</td>
<td>A 16% increase in average peak hour travel speed and a 25% increase in peak period volume.</td>
</tr>
<tr>
<td>Seattle, WA</td>
<td>A 52% reduction in average travel time and a 74% increase in traffic volume.</td>
</tr>
<tr>
<td>Denver, CO</td>
<td>A 57% increase in average peak period travel speed and a 37% decrease in average travel time.</td>
</tr>
<tr>
<td>Detroit, MI</td>
<td>An 8% increase in average travel speed and a 14% increase in traffic volume.</td>
</tr>
<tr>
<td>Long Island, NY</td>
<td>A 9% increase in average travel speed.</td>
</tr>
</tbody>
</table>
Today’s Meeting

Agenda

• Introductions
• Controversy
• What would you do? Interactive
• Building Trust
• What would you do? Interactive
• Consensus
• Questions, Answers, Discussion
Network Model:

- Models alternate routes
- Calibrated to field data
- Separate AM and PM models
- Forecasts future conditions
Traffic Studies:

- Traffic counts
  - Aerial photography
  - Origin-destination counts
  - Turning movement counts
  - ATR counts
- Safety and Geometric studies
- Alternate routes
- Alternate modes