PROGRAM DESCRIPTION AND STRATEGY

Paving for Progress
Bowling Street Pavement Rehabilitation & Lane Conversion

Paving for Progress Update

Doug Wilson
Paving for Progress Manager
City of Cedar Rapids

Paving for Progress

- 1 percent local options sales tax
- Initial 10-year investment: 2014 – 2024
- Sales tax generated by Cedar Rapids residents and visitors
- Approximately $20 million annually; $200 million over the life of the program
- Funds set aside solely for the maintenance, repair, construction and reconstruction of public streets
- Renewed on November 2, 2021 for 2024 – 2034 with 70% support
The Strategy

- Address neighborhood streets
- Invest in roads before the end of their service life
- Completely replace some of our most deteriorated roads
- Data-driven, impartial, and measurable

Data and Planning

- Every road inspected & categorized
- Ranked Very Poor to Very Good
- Data re-collected every two years, so we can measure progress
- Revised 10 year plan every two years

Treatment Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Average Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reconstruction</td>
<td>$1 million/mile</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>$700,000/mile</td>
</tr>
<tr>
<td>Maintenance</td>
<td>$85,000/mile</td>
</tr>
</tbody>
</table>

- Reconstruction Complete removal and replacement of street
- Rehabilitation Asphalt resurfacing, concrete patching, etc.
- Maintenance Preventative – microsurfacing, seal coat, crack filling, etc.
Planning Ahead

- Public Outreach and Messaging from the time the program began
- Without the extension of LOST, the City would have needed seek other funding options to maintain the progress we have made so far.
- The City stayed “shovel-ready” by planning projects through FY 2027.

Program Renewal Pre-vote Polling

In 2013, voters in Cedar Rapids approved a local one penny sales tax to fund repairs and improvements for the city’s roads, streets, and bridges. Generally speaking, do you believe this money has been put to good use by the city?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Yes</td>
<td>235</td>
<td>45.7%</td>
</tr>
<tr>
<td>Somewhat Yes</td>
<td>117</td>
<td>22.8%</td>
</tr>
<tr>
<td>TOTAL YES</td>
<td>352</td>
<td>68.5%</td>
</tr>
<tr>
<td>Somewhat No</td>
<td>45</td>
<td>8.8%</td>
</tr>
<tr>
<td>Strongly No</td>
<td>95</td>
<td>18.5%</td>
</tr>
<tr>
<td>TOTAL NO</td>
<td>150</td>
<td>27.3%</td>
</tr>
<tr>
<td>Unsure</td>
<td>22</td>
<td>4.3%</td>
</tr>
</tbody>
</table>
### Pre-vote Polling (Cont)

The local Cedar Rapids one penny sales tax, which is used to fund street repairs and improvements, expires in 2024. If you had to vote today, would you vote to extend the sales tax for 10 years or end this sales tax?

<table>
<thead>
<tr>
<th>Option</th>
<th>Votes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely Extend</td>
<td>276</td>
<td>53.7%</td>
</tr>
<tr>
<td>Probably Extend</td>
<td>67</td>
<td>13.0%</td>
</tr>
<tr>
<td>TOTAL END</td>
<td>343</td>
<td>66.7%</td>
</tr>
<tr>
<td>Probably End</td>
<td>40</td>
<td>7.8%</td>
</tr>
<tr>
<td>Definitely End</td>
<td>112</td>
<td>21.8%</td>
</tr>
<tr>
<td>TOTAL END</td>
<td>152</td>
<td>29.6%</td>
</tr>
<tr>
<td>Unsure</td>
<td>19</td>
<td>3.7%</td>
</tr>
<tr>
<td>Refused</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Pre-vote Polling (Cont)

Generally speaking, do you think the inconvenience of traffic delays during road construction are worth the end result of better streets?

<table>
<thead>
<tr>
<th>Option</th>
<th>Votes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>422</td>
<td>82.1%</td>
</tr>
<tr>
<td>No</td>
<td>72</td>
<td>14.0%</td>
</tr>
<tr>
<td>Unsure</td>
<td>19</td>
<td>3.7%</td>
</tr>
<tr>
<td>Refused</td>
<td>1</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

### Pre-vote Polling (Cont)

Generally speaking, do you believe the roads and streets in Cedar Rapids are more safe, less safe, or about as safe as they were 8 years ago before the start of Paving for Progress?

<table>
<thead>
<tr>
<th>Option</th>
<th>Votes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Safe</td>
<td>165</td>
<td>32.1%</td>
</tr>
<tr>
<td>As Safe</td>
<td>183</td>
<td>35.6%</td>
</tr>
<tr>
<td>Less Safe</td>
<td>125</td>
<td>24.3%</td>
</tr>
<tr>
<td>Unsure</td>
<td>40</td>
<td>7.8%</td>
</tr>
<tr>
<td>Refused</td>
<td>1</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

### Pre-vote Polling (Cont)

Generally speaking, do you believe Cedar Rapids has too many bicycle lanes, not enough bicycle lanes, or the right amount of bicycle lanes?

<table>
<thead>
<tr>
<th>Option</th>
<th>Votes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too Many</td>
<td>210</td>
<td>40.9%</td>
</tr>
<tr>
<td>The Right Amount</td>
<td>188</td>
<td>36.6%</td>
</tr>
<tr>
<td>Not Enough</td>
<td>89</td>
<td>17.3%</td>
</tr>
<tr>
<td>Unsure</td>
<td>26</td>
<td>5.1%</td>
</tr>
<tr>
<td>Refused</td>
<td>1</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

### Message Ranking

<table>
<thead>
<tr>
<th>Message</th>
<th>Much More</th>
<th>Total Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makes Streets Safer</td>
<td>60.9%</td>
<td>72.8%</td>
</tr>
<tr>
<td>Saves Money for Auto Owners</td>
<td>58.2%</td>
<td>72.4%</td>
</tr>
<tr>
<td>Everyone using streets, pay fair share</td>
<td>52.9%</td>
<td>69.0%</td>
</tr>
<tr>
<td>Not Renewed, Have to Increase Prop Taxes</td>
<td>56.6%</td>
<td>67.9%</td>
</tr>
<tr>
<td>Pay as you Go Approach, No debt</td>
<td>53.3%</td>
<td>65.9%</td>
</tr>
</tbody>
</table>
Neighborhood Outreach

- Neighborhood Meetings
- Service Groups
- Informational Letters
- Media Stories
- Public Hearings
- Online Database
- Project E-Newsletters

Publications

- Publications
- 5-Year Report
- Online Database

Staying in Touch

- View the Paving for Progress Website: www.cityofcr.com/pavingforprogress
- Sign up for the City Newsletter: www.cityofcr.com/subscribe
- Follow the City on Twitter: @CityOfCR
- Connect with the City on Instagram: @CityofCR
- Engage the City on Facebook: www.facebook.com/CityofCRiowa
- Register for the CR News Now Text Alerts: www.CRNewsNow.com

Program Achievements
**Achievements to Date**

- Approximately **$141 million** invested into our roads
- More than **77 linear miles** of roadway improved
- **252 projects** completed to date
- 73% of completed projects have been residential
- 27% of completed projects have been arterial

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**Achievements to Date (Con’t)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Concrete Used (CY)</th>
<th>PFP Usage (CY)</th>
<th>All Other Usage (CY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>293,232</td>
<td>118,148</td>
<td>175,808</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Concrete Used (CY)</th>
<th>PFP Usage (CY)</th>
<th>All Other Usage (CY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>14,737</td>
<td>5,669</td>
<td>9,068</td>
</tr>
<tr>
<td>2015</td>
<td>23,765</td>
<td>13,915</td>
<td>9,850</td>
</tr>
<tr>
<td>2016</td>
<td>51,392</td>
<td>29,758</td>
<td>21,634</td>
</tr>
<tr>
<td>2017</td>
<td>34,957</td>
<td>11,785</td>
<td>23,173</td>
</tr>
<tr>
<td>2018</td>
<td>56,027</td>
<td>31,827</td>
<td>24,199</td>
</tr>
<tr>
<td>2019</td>
<td>22,594</td>
<td>13,834</td>
<td>8,760</td>
</tr>
<tr>
<td>2020</td>
<td>43,481</td>
<td>37,242</td>
<td>26,239</td>
</tr>
<tr>
<td>2021</td>
<td>47,004</td>
<td>30,713</td>
<td>16,291</td>
</tr>
</tbody>
</table>

- Between 2014 and now, the City has consumed an average of 9.8 concrete trucks (10 CY each) every single day.
- The concrete used could fill more than 38 Goodyear blimps, or build 104 miles of 8”, 21' wide pavement.

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**Achievements to Date (Con’t)**

**Pre-Cast Products Used by PFP**

- Cedar Rapids awarded $12.7 million in drainage infrastructure for PFP work between summer 2014 and now. This includes:
  - $6.7 million in RCP products
  - $3.8 million in storm sewer intakes
  - $1.4 million in manholes
  - $600,000 in culverts and miscellaneous items
- The $12.7 million amounts to:
  - An average of $1.8 million per fiscal year in drainage infrastructure
  - Approximately 10% of the $122.7 million spent overall through March 2021

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**TRANSFORMATIONS & TESTIMONIAL**
Northwood Drive NE

"I wanted to let you know the construction crew has done a great job and were very helpful and courteous throughout the whole process. I could not ask for more or be more pleased with the outcome!"

- Resident from Northwood NE

C Avenue NE between Collins Road and 40th Street
Completed 2017 | $2.3M Investment

West Post Road NW

Center Point Road NE and 32nd Street
Completed 2019 | $3.7M Investment
Thank you!

Questions?

Bowling Street Pavement Rehabilitation & 4 Lane to 3 Lane Conversion

PROJECT GOALS

• Reduce collisions
• Improve rail crossing safety
• Cost effective pavement preservation technique
• Pedestrian access

REDUCE COLLISIONS

4-lane to 3-lane conversion
• 95 collisions in 10 years, 3 serious injuries, 12 minor, 15 possible
• 28 Speed related collisions
• 12 main cross streets
  • Many more driveways
  • Railroad crossing improvements
PAVEMENT PRESERVATION

- Slab displacement
- Some panel failures
- Pavement profiling
- Reallocation of pavement width to center turn lane and bicycle lanes

PEDESTRIAN ACCESS

- Reduced number of lanes to cross
- Upgraded to Rapid Rectangular Flashing Beacon (RRFB)
- Added sidewalk crossing of railroad on Bowling Street

Cedar Rapids – Bowling Street Rehab & Lane Conversion Design

- Presented by:
  Patrick Schwickerath, P.E.
  Civil Engineer

Cedar Rapids – Bowling Street Rehab

- Minimal Panel Cracking
- Minimal Joint Deterioration
- Faulted Pavement Joints
- Good Candidate for Rehab
- Pavement 1979
Joint Analysis
• Ground Penetrating Radar Scan
  • Longitudinal Joints
  • Transverse Joints
• Falling Weight Deflectometer
  • Confirmed Areas of Load Transfer Inefficiency
  • Dowel Bar Retrofit
  • Areas to be Reviewed Further

Rehabilitation
• Dowel Bar Retrofit
• Cross Stitching

Rehabilitation
• Partial Depth Patches
• Full Depth Patches

Rehabilitation
• Diamond Grinding
• DBR Not Included with the Bike Lanes
**Bridge Approach**
- Field Review
  - Faulting
  - Joint/Pavement Deterioration
  - Paving Notch
- Reconstruct
  - Approach Pavement
  - Barrier Rail
  - Trail

**Railroad**
- CRANDIC
- New Rail Crossing
  - Pavement
  - Signals
- Approach Pavement
- Medians

**4 to 3 Lane Conversion**
- Existing Roadway Configuration
- Proposed Section
- Grooves & Pavement Markings
- Bike Route
- Final Section

**Pedestrian Crossing**
- Existing Conditions
- Rectangular Rapid Flashing Beacon (RRFB)
  - Solar
  - Pushbuttons
  - Audible
  - Footings
- Median
Traffic Control & Staging

- Maintain Two-Way Traffic When Possible
- Closures for Railroad
- Detours
- DOT Coordination

Contractor’s Perspective

At the bidding Table

- Positives
  - Work type. All inclusive pavement rehab are some of our most successful projects.
  - The staging was contractor friendly. Having the ability to put traffic in a head-to-head configuration should allow us more & easier access to our work.

Contractor’s Perspective

At the bidding Table

- Potential Challenges
  - Coordination with CRANDIC Railroad
    - Without proper communication this can hinder our production.
    - I have to say having never worked with Crandic, they were great to work with.
Contractor’s Perspective
At the bidding Table
• Need for Sub-Contractor’s. We were able to partner with these great companies.
  • Advanced Traffic Control – Traffic Control, Paint, Permanent signs & crosswalk signs
  • LL Pelling – Milling, HMA overlay, & HMA for RR track crossings
  • M. Clark – Survey
  • Pirc Tobin – Pavement Removals, Dirt work, underground Storm sewer repairs
  • West Fork Grinding – Diamond Grinding

Key’s to Success after Project Award
• These are some Key’s to success we as Manager’s meet and discuss with crew leaders prior to start of construction.
  • Safety of Our Crews, Subcontractors, Pedestrians, & the Traveling public are of the utmost importance
  • Communication & Coordination, always important.
  • Work Quality
  • The Project Schedule

Contractor’s Perspective
At the bidding Table
• Need for Sub-Contractor’s. We were able to partner with these great companies.
  • Curtis Contracting – ADA & Sidewalks
  • Hardscape Solutions – Decorative Brick Pavers
  • Soil-Tek – Seeding

Keys to Quality
• Iowa Civil Contracting includes a wide discussion of project specifics during our pre-work meetings.
  • Each work type presents its own set of challenges. We are fortunate to have extensive experience in the pavement rehab industry.
  • Here are 2 examples
Keys to Quality, We hold ourselves to a High Standard

• Dowel Bar Retrofit (DBR)
  - We STRESS cleanliness of the Slot for the DBR. This is achieved by thorough & competent sandblasting.
  - Accurate sawing for DBR slots.
    - Depth, based on existing roadway for the bar to be at T/2
    - Alignment, parallel to centerline
  - Quality Materials For the Concrete
    - FasTrac 300 Rapid Set Cement
    - 3/8 Pea Rock
    - Clean Concrete Sand

Keys to Quality

• Partial Depth Concrete Repairs
  - We STRESS cleanliness of the Repair. Again, this is achieved by thorough & competent sandblasting.
  - Timely & Accurate sawing to re-establish the existing joints.
    - We view this a Key to success & quality of Partial Depth Concrete repairs.

Sawing of Partial Depth Repairs

![Diagram of Sawing Partial Depth Repairs]

Keys to Quality

• Partial Depth Concrete Repairs
  - We agree and were pleased that this roadway was a good candidate for this type of repair. We have seen roads once the top 2 inches is milled away, D-Cracking and moisture end up being full depth at the joints.
Keys to Quality

• Cross Stitching

• We were pleased there was the option to use cross stitching on this project to repair random cracks or joints that had no other issues with deterioration, such as spalling.

• In our experiences we have been asked to Partial depth repair random cracks that could or should have been cross stitched.

Diamond Grinding

• I wanted to include a side note regarding collection and disposal of the diamond grinding slurry. If you are considering a project with Diamond Grinding any help you could provide for a disposal site would be much appreciated as it is getting more difficult to find sites.

• We appreciate help that was provided by the City of Cedar Rapids.

In Conclusion

• We were pleased to work with the City of Cedar Rapids on this project.

• Project adjustments made during construction were challenging yet successful.

• We were able to Commit & Deliver a Safe and Quality project on schedule.

• Thank you.

Thank you!

• Doug Wilson, P.E. Cedar Rapids Paving for Progress Program Manager
  - D.Wilson@cedar-rapids.org
  - 319-286-5141

• Tim Mroch, P.E. Cedar Rapids Program Manager
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