AGENDA
KEY STREETS & STATE STREET PROJECTS

▪ Pilot Project Review
▪ Project Specific Findings
▪ Overall Findings and Lessons Learned
▪ Next Steps
KEY GOALS FOR THE PILOT PROJECTS

▪ Increase physical distancing and COVID-19 safety

▪ Reinforce the DDAs core values for street projects:
  – Safety & Vision Zero alignment
  – Connectivity & Equitable Access for vulnerable users
  – Supporting carbon neutrality (A2Zero)

▪ Inform future design and project work
  – Understand what worked
  – Understand issues and challenges
  – Lessons learned
PILOT PROJECTS

DDA INITIATED

A Miller/Catherine Bikeway
B Division St. Bikeway
C S. Main Bike Lane Connection (with city extension)
D State St / N. University Link
E Packard Triangle

- Existing bike lanes
- Existing / Under construction separated bikeway
- Planned advisory bike lanes
OVERALL OUTCOMES

BIG PICTURE

▪ Successes
  – Measurably improved safety
  – Measurably improved access and non-motorized use

▪ Challenges:
  – Community polarization
    ▪ Need to be talking about values & how we make decisions
    ▪ A longer engagement period + more value-based conversations
    ▪ Engagement at leadership and staff level with community will help
KEY FINDINGS

PEOPLE-FRIENDLY STREETS
KEY FINDING: NON-MOTORIZED NETWORK

- **67% of survey respondents** had **used at least one of the pilot projects** for walking and biking (425 out of 695).

- **73-81% of respondents** who used a specific pilot project reported that **it improved** their experience biking downtown.

- **76% of respondents** who used the projects reported that they **increased their sense of comfort, security, and safety** when bicycling downtown.

- **Over 4,649 bicycle trips** were recorded at 13 different locations over a 3-day period.

- **Bicycle traffic increased dramatically** upon installation of the temporary bike lanes on average among all sites after deployment.
KEY FINDING: SAFETY

- **Physical distancing:** 76% of survey respondents that used the projects said they contributed to their ability to maintain an appropriate physical distance while walking or biking.

- **Vehicle speeds:** The temporary street changes reduced speed at nearly all pilot locations by 1-6 mph.

- **Crashes:** The frequency of crashes was lower (although in partially expected given the overall decrease in traffic volumes).
KEY FINDING: TRAFFIC & OPERATIONS

- **Traffic volumes:** Varied between sites, ranging from -1% to -64% compared to pre-pandemic counts.
  - A total average decrease of -40% (not including Broadway).

- **General traffic operations:** No significant impacts to traffic operations were observed.
  - Some driver confusion occurred related to lane signage where turn lanes were removed (this was corrected during the deployment).

- **Traffic backups and delays:** Few significant backups (defined as 10+ vehicles) were observed outside of certain peak hour times and at certain intersections.
  - Most backups cleared within 30-90 seconds
  - Significant backups affecting adjacent intersections were not observed consistently in the DDA pilot projects.
INDIVIDUAL PROJECT FINDINGS

PEOPLE-FRIENDLY STREETS
Overall met the goals:

Access:
- 78% of users said the pilot improved their experience walking or biking downtown.
- Non-motorized use increased; with the bikeway serving 134-170 trips per day.

Safety:
- Significant speed reduction - 6mph (from above the speed limit to within the speed limit).
- No crashes occurred during the pilot period, which is below the average for the reporting months.
Well-used and well supported by non-motorized users.

Minimal traffic impacts based on observation & analysis.

Long-term solutions provide opportunity to further improve safety and clarify vehicle operations (especially west of N. Main Street)
# MILLER/CATHERINE

## PROJECT FINDINGS

<table>
<thead>
<tr>
<th>Safety</th>
<th>Bicycle Connectivity &amp; Access</th>
<th>Traffic Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle Speeds</strong></td>
<td><strong>Bicycle Volumes</strong></td>
<td><strong>Traffic Volumes</strong></td>
</tr>
<tr>
<td><strong>(85th percentile)</strong></td>
<td><em>(Pre-deployment bike counts only collected where dedicated bike facilities present)</em></td>
<td>Volumes decreased during the pilot</td>
</tr>
<tr>
<td>Significant reduction:</td>
<td>No Pre-install volumes available*</td>
<td><em>(location selected based on comments and field observations)</em></td>
</tr>
<tr>
<td>6 mph reduction and below posted speed limit (1 location)</td>
<td>Post-install: 153/day (1 location)</td>
<td><strong>Backups - AM Peak</strong></td>
</tr>
<tr>
<td>Crash Comparison (Sept/October 2020 vs. historic average)</td>
<td>Survey - Usership</td>
<td><strong>Backups - PM Peak</strong></td>
</tr>
<tr>
<td>No crashes recorded.</td>
<td>217 respondents used facility</td>
<td>Infrequent backups observed at only 1 of 6 intersections: North Main &amp; Miller - typically cleared within 30-seconds.</td>
</tr>
<tr>
<td>Typically 2-3 during</td>
<td>Survey - Experience</td>
<td><strong>Turning &amp; Behaviors</strong></td>
</tr>
<tr>
<td>No known crashes involving bikes/peds</td>
<td>78% positive user experience</td>
<td>S. Main &amp; Miller confusion with no left turn. Signage modified.</td>
</tr>
<tr>
<td><strong>Conflicts / Issues Affecting Operations</strong></td>
<td>Loading and deliveries between 4th Ave &amp; 5th Ave</td>
<td></td>
</tr>
<tr>
<td><strong>Supports Vision Zero</strong></td>
<td>Overall safety improvement</td>
<td></td>
</tr>
</tbody>
</table>

**KEY:**
- **Benefits realized**
- **Limited impact / Positive outcome**
- **Neutral**
- **Minor impact / Mitigatable**
- **Moderate impact**
- **Informational**
Overall met the goals:

Access:
- 81% of users said the pilot improved their experience walking or biking downtown
- Bicycle trips increased **2-3 times** over the pre-install volumes.

Safety:
- Moderate speed reductions - 5mph. **More work is needed here to bring speeds within the speed limit.**
- No crashes involving people walking or biking occurred.
- Below average vehicle crashes for the reporting months.

- Traffic impacts along most of the corridor appeared minimal
  - Division & Catherine intersection is complex
The most well-used and supported of the temporary bicycle improvements.

Based on counts and survey feedback, Division may be the most critical low stress link to improve access downtown and serve a variety of users.

Division & Catherine intersection is complex – long-term solutions can include signalization changes to further minimize conflicts and improve traffic flow.
## Division Street/Broadway

### Project Findings

<table>
<thead>
<tr>
<th>Safety</th>
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<tbody>
<tr>
<td>Vehicle Speeds (85th percentile)</td>
<td>Moderate speed reduction in all locations: 1-5 mph reduction (4 locations)</td>
<td>Bicycle Volumes (* Pre-deployment bike counts only collected where dedicated bike facilities present)</td>
</tr>
<tr>
<td>Crash Comparison (Sept/October 2020 vs. historic average)</td>
<td>Crashes were lower (5) than typical (6-8)</td>
<td>Survey - Usership</td>
</tr>
<tr>
<td>Crashes - Pedestrians / Bikes / Pilot Project</td>
<td>No known crashes involving bikes/peds</td>
<td>Survey - Experience</td>
</tr>
<tr>
<td>Conflicts / Issues Affecting Operations</td>
<td>Confusion and slow speed compliance at Division &amp; Catherine</td>
<td>Traffic Volumes</td>
</tr>
<tr>
<td>Supports Vision Zero</td>
<td>Overall safety improvement</td>
<td>Video Review Location (location selected based on)</td>
</tr>
</tbody>
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### Key
- **Benefits realized**
- **Limited impact / Positive outcome**
- **Neutral**
- **Minor impact / Mitigatable**
- **Moderate impact**
- **Informational**

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**SmithGroup**
Overall met the goals:

Access:
- 73% of users said the pilot improved their experience walking or biking downtown.
- Bicycle trips averaged 92 trips per location per day across the project area.

Safety:
- Moderate vehicle speed reductions - 1-3 mph. More work is needed to bring speeds down to within the speed limit.
- No crashes involving people walking or biking.
- Vehicle crashes were below the average for the reporting months.
Filled a gap in the non-motorized network

Future facilities can support the goal of reducing vehicle miles traveled (VMT).

Traffic impacts in the DDA portion of the project (William to Packard) appeared relatively minimal.

- Some PM backups occurred, typically clearing in 20-90 seconds.

South Main corridor is changing – how do we begin to rethink this portion of the street as a people-friendly corridor and gateway into the downtown.
## SOUTH MAIN

### PROJECT FINDINGS

<table>
<thead>
<tr>
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<th><strong>Bicycle Connectivity &amp; Access</strong></th>
<th><strong>Traffic Operations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle Speeds</strong>&lt;br&gt;(85th percentile)</td>
<td>Moderate reduction in all locations;&lt;br&gt;1-3 mph reduction (3 locations)</td>
<td><strong>Bicycle Volumes</strong>&lt;br&gt;(* Pre-deployment bike counts only collected where dedicated bike facilities present*)</td>
</tr>
<tr>
<td><strong>Crash Comparison</strong>&lt;br&gt;(Sept/October 2020 vs. historic average)</td>
<td>Crashes were lower (8-9) than typical (10-14)</td>
<td><strong>Survey - Usability</strong>&lt;br&gt;203 respondents used facility</td>
</tr>
<tr>
<td><strong>Crashes - Pedestrians / Bikes / Pilot Project</strong></td>
<td>No known crashes involving bikes/peds</td>
<td><strong>Survey - Experience</strong>&lt;br&gt;73% positive user experience</td>
</tr>
<tr>
<td><strong>Conflicts / Issues Affecting Operations</strong></td>
<td>Construction at former DTE office site. Misplaced barricades. Loading and deliveries between Mosley and Madison</td>
<td><strong>Traffic Operations</strong>&lt;br&gt;Traffic Volumes</td>
</tr>
<tr>
<td><strong>Supports Vision Zero</strong></td>
<td>Overall safety improvement</td>
<td><strong>Video Review Location</strong>&lt;br&gt;(location selected based on)</td>
</tr>
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**KEY:**
- **Green:** Benefits realized
- **Yellow:** Limited impact / Positive outcome
- **Blue:** Neutral
- **Orange:** Moderate impact
- **Gray:** Informational

**SMITHE GROUP**
Overall met the goals:

Access:

- **77%** of users said the pilot improved their experience walking or biking downtown.
- Bicycle trips averaged 98 trips per location per day across the project area.

Safety:

- Minor reductions of vehicle speeds by 1 mph. 85th percentile speeds in this area recorded below the posted limit already.
- No crashes involving people walking or biking.
- Typical number of vehicle crashes were recorded for the reporting months.
Well-used and effectively extended the William Street Bikeway to the existing bike lanes on North University.

Minimal traffic impacts, despite traffic volumes on State Street being closer to historic volumes than other locations.

A critical consideration for future designs will be understanding and accommodating transit and bus turning movements in this area, given the presence of AAATA and UM buses.
# Project Findings

## Safety

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<tr>
<th>Safety</th>
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<tbody>
<tr>
<td>Vehicle Speeds</td>
<td>Minor reductions in all locations: 1 mph reduction (2 locations)</td>
</tr>
<tr>
<td>Crash Comparison</td>
<td>Typical number of crashes (2) were observed (2)</td>
</tr>
<tr>
<td>Crashes - Pedestrians / Bikes / Pilot Project</td>
<td>No known crashes involving bikes/peds.</td>
</tr>
<tr>
<td>Conflicts / Issues Affecting Operations</td>
<td>Construction vehicles frequently parked in N. University bikeway.</td>
</tr>
<tr>
<td>Supports Vision Zero</td>
<td>Overall safety improvement</td>
</tr>
</tbody>
</table>

## Bicycle Connectivity & Access

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<tr>
<td>Bicycle Volumes</td>
<td>No Pre-install volumes available * Post-install. average 98 per location/day (1 location)</td>
</tr>
<tr>
<td>Survey - Usership</td>
<td>209 respondents used facility</td>
</tr>
<tr>
<td>Survey - Experience</td>
<td>77% positive user experience</td>
</tr>
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## Traffic Operations

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<tr>
<th>Traffic Operations</th>
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<tbody>
<tr>
<td>Traffic Volumes</td>
<td>Traffic slightly lower on State Street. Counts impacted by weekend commercial street closures</td>
</tr>
<tr>
<td>Video Review Location</td>
<td>State &amp; N. University</td>
</tr>
<tr>
<td>Backups - AM Peak</td>
<td>1 backup observed (cleared in 60 seconds)</td>
</tr>
<tr>
<td>Backups - PM Peak</td>
<td>No PM backups observed</td>
</tr>
<tr>
<td>Turning &amp; Behaviors</td>
<td>Bus turning was initially tight. Adjusted stop bars during the pilot</td>
</tr>
</tbody>
</table>

## Key

- **Benefits realized**
- **Limited impact / Positive outcome**
- **Neutral**
- **Minor impact / Mitigatable**
- **Moderate impact**
- **Informational**
PACKARD (HILL & STATE)
PACKARD (HILL & STATE)
KEY FINDINGS & FUTURE CONSIDERATIONS

- Overall met the goals:

**Access:**
- 80% of users said the pilot improved their experience walking or biking downtown.

**Safety:**
- No crashes involving people walking or biking.
- Typical number of vehicle crashes were recorded for the reporting months.

- Opportunity to restore Packard a prior configuration (before a construction detour made “permanent” changes)

- Critical link to DDA, but project is outside of the DDA
# Packard (Hill & State) Project Findings

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## Bicycle Connectivity & Access

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<tr>
<td>Bicycle Volumes (<em>Pre-deployment bike counts only collected where dedicated bike facilities present</em>)</td>
<td>Signiﬁcant increase in bicycle volumes. Pre-install avg: 95/day Post-install avg: 189/day (4 locations)</td>
</tr>
<tr>
<td>Survey - Usership</td>
<td>285 respondents used facility</td>
</tr>
<tr>
<td>Survey - Experience</td>
<td>81% positive user experience</td>
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## Traffic Operations

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<tr>
<td>Traffic Volumes</td>
<td>Traffic volumes slightly lower in 2 locations, about the same in 1 location, and higher in 1 location</td>
</tr>
<tr>
<td>Video Review Location (location selected based on)</td>
<td>Division &amp; Catherine</td>
</tr>
<tr>
<td>Backups - AM Peak</td>
<td>Infrequent AM backups observed at 1 of 11 intersections</td>
</tr>
<tr>
<td>Backups - PM Peak</td>
<td>Backups observed at only 1 of 11 intersections: Occasional Division &amp; Catherine PM backups (at stop sign). Typically clears between light cycles.</td>
</tr>
<tr>
<td>Turning &amp; Behaviors</td>
<td>Stop sign compliance for drivers running stop-signs</td>
</tr>
</tbody>
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**Key:**
- Green: Benefits realized
- Limited impact / Positive outcome
- Neutral
- Minor impact / Mitigatable
- Moderate impact
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LESSONS LEARNED

PEOPLE-FRIENDLY STREETS
LESSONS LEARNED

1. Some temporary measures are not as effective as the real thing (e.g. temporary all-way stops vs. more long-term infrastructure changes)

2. Construction barrels can look messy and are not as intuitive/clear as proper delineators. Can lead to compliance issues.

3. Speeds needed to be reduced further to fall within posted speed limits.
4. Notable community consensus/polarization. Need to focus community conversation on shared values and managing change. Put criticisms into appropriate context.

5. Where site-specific issues arose, they were often a result of pilot project limitations. Long-term improvements can mitigate many of these impacts.

6. Engagement remains critical but challenging. Connecting with a diverse range of users, especially vulnerable and hard to reach users, essential.
OVERALL FINDINGS

- Projects met the goals – improved safety + access
  - Showed what a more complete low-stress bike network could be like
- Comments from bikeway users supportive and appreciative
- High level of use (67% of respondents used a project) of the pilot projects
- Most complaints were from non-users regarding traffic slow downs
  - Increases in travel time expected with slower travel speeds and reduction of lanes
  - Slowdowns typically 30-90 seconds - and at only certain locations at certain times of day. Future designs can work to minimize these impacts.
  - Other healthy street projects often magnet for criticism.
NEXT STEPS - INFORMING KEY STREETS

- Pilot Projects identified based on key streets analysis, city’s Transportation Plan update, street design manual

- Pilot projects can inform key street projects where they overlap
  - Big picture informing network, routing
  - Informs the detail and design of potential projects

- Implementation in post-pandemic era
  - Respond to uncertainty around traffic patterns and volumes
  - Emphasize flexibility and adaptability
MOBILITY NETWORK
• Complete the hub and spoke network centered on the downtown core

BALANCED / SLOW STREETS
• Calm vehicular traffic to increase pedestrian space and encourage cycling

AFFORDABLE HOUSING
• Investing in street and utility infrastructure to encourage affordable housing downtown