Monroe Street Reconstruction

Cross Section Open House

October 27, 2016

CITY OF MADISON ENGINEERING

UrbanAssets

Project Team: City Staff

- Christy Bachmann, P.E., Principal Engineer
- Chris Petykowski, P.E., Principal Engineer
- Jim Wolfe, Project Engineer
- Ruth Rohlich, Business Development Specialist
- Phil Gaebler, Water Resources Specialist
- David Dryer, P.E., City Traffic Engineer
- Yang Tao, Ph.D., P.E., Assistant City Traffic Engineer
- Rebecca Cnare, PLA, Urban Design Planner
- Benjamin Zellers, Transportation Planner
- Tim Sobota, Metro Transit Planner

Tonight's Agenda

Thank you to Edgewood College!

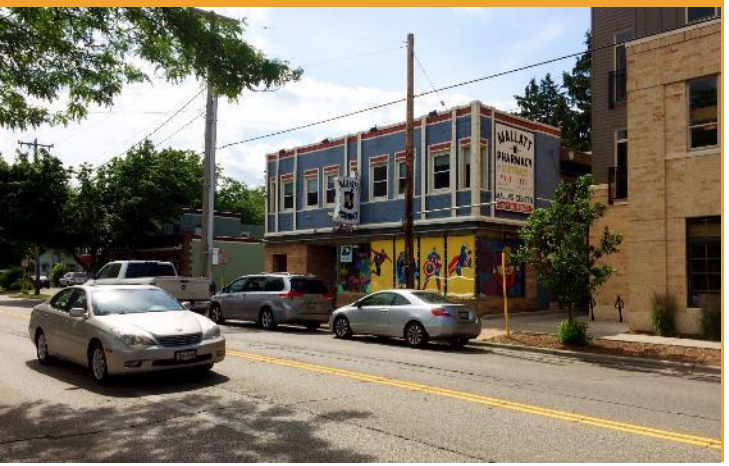
1. Public Engagement Process & Results
2. Cross Section Analysis
3. Q&A
4. Open House

Ground Rules

- Ask clarifying questions as we go (e.g., to explain a term or repeat a statement).
- Save longer discussion questions for the end.
- Allow others time to speak.
- Speak from your own experience and only for yourself.
- Practice respect.

Public Engagement Process

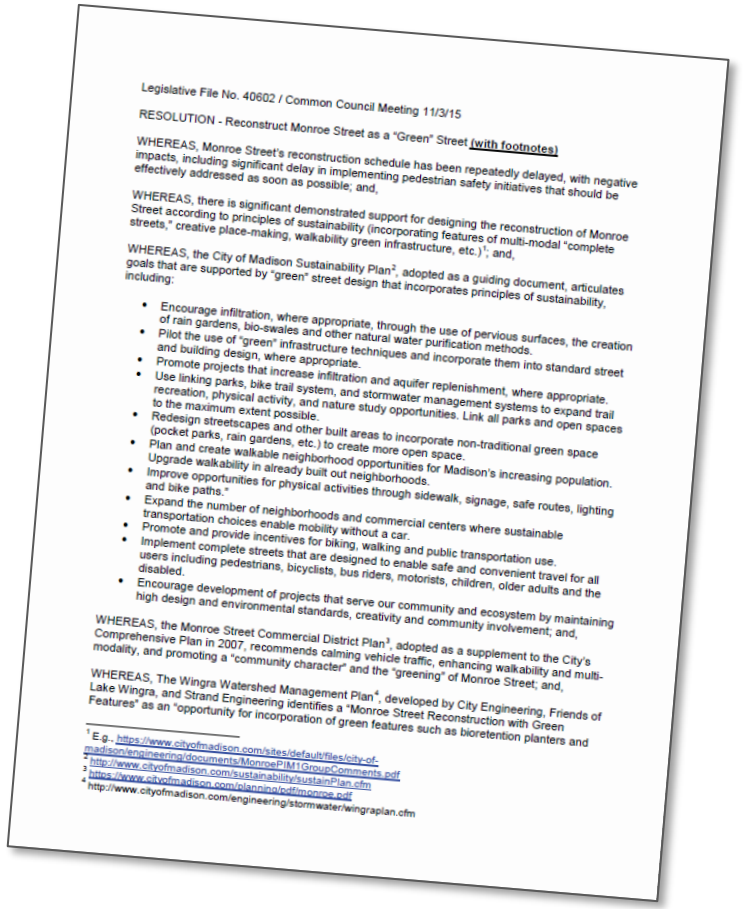
2014 Input



- Improve pedestrian safety by enhancing crosswalks and reducing speeds.
- Provide more space/options for bike use and additional bike parking.
- Improve bus service.
- Maintain parking for businesses.
- Configure lanes to be multi-modal friendly.
- Minimize run-off and collect sediment.
- Preserve existing character.
- Add green space, art & storytelling opportunities.
- Add streetscape amenities (seating, lights, etc.).

2015: Monroe "Green" Street Resolution

- *Reconstruct Monroe Street as a "Green" Street*
- Adopted in November 2015
- Emphasizes sustainability principles related to complete streets, placemaking, walkability, green infrastructure and multi-modality



Legislative File No. 40602 / Common Council Meeting 11/3/15

RESOLUTION - Reconstruct Monroe Street as a "Green" Street **(with footnotes)**

WHEREAS, Monroe Street's reconstruction schedule has been repeatedly delayed, with negative impacts, including significant delay in implementing pedestrian safety initiatives that should be effectively addressed as soon as possible; and,

WHEREAS, there is significant demonstrated support for designing the reconstruction of Monroe Street according to principles of sustainability (incorporating features of multi-modal "complete streets," creative place-making, walkability green infrastructure, etc.)[1]; and,

WHEREAS, the City of Madison Sustainability Plan[2], adopted as a guiding document, articulates goals that are supported by "green" street design that incorporates principles of sustainability, including:

- Encourage infiltration, where appropriate, through the use of pervious surfaces, the creation of rain gardens, bio-swales and other natural water purification methods.
- Pilot the use of "green" infrastructure techniques and incorporate them into standard street and building design, where appropriate.
- Promote projects that increase infiltration and aquifer replenishment, where appropriate.
- Use linking parks, bike trail system, and stormwater management systems to expand trail recreation, physical activity, and nature study opportunities. Link all parks and open spaces to the maximum extent possible.
- Redesign streetscapes and other built areas to incorporate non-traditional green space (pocket parks, rain gardens, etc.) to create more open space.
- Plan and create walkable neighborhood opportunities for Madison's increasing population. Upgrade walkability in already built out neighborhoods.
- Improve opportunities for physical activities through sidewalk, signage, safe routes, lighting and bike paths."
- Expand the number of neighborhoods and commercial centers where sustainable transportation choices enable mobility without a car.
- Promote and provide incentives for biking, walking and public transportation use.
- Implement complete streets that are designed to enable safe and convenient travel for all users including pedestrians, bicyclists, bus riders, motorists, children, older adults and the disabled.
- Encourage development of projects that serve our community and ecosystem by maintaining high design and environmental standards, creativity and community involvement; and,

WHEREAS, the Monroe Street Commercial District Plan[3], adopted as a supplement to the City's Comprehensive Plan in 2007, recommends calming vehicle traffic, enhancing walkability and multi-modality, and promoting a "community character" and the "greening" of Monroe Street; and,

WHEREAS, The Wingra Watershed Management Plan[4], developed by City Engineering, Friends of Lake Wingra, and Strand Engineering identifies a "Monroe Street Reconstruction with Green Features" as an "opportunity for incorporation of green features such as bioretention planters and

[1] *E.g.*, https://www.cityofmadison.com/sites/default/files/city-of-madison/engineering/documents/MonroePIM1GroupComments.pdf
[2] http://www.cityofmadison.com/sustainability/sustainPlan.cfm
[3] https://www.cityofmadison.com/planning/pdf/monroe.pdf
[4] http://www.cityofmadison.com/engineering/stormwater/wingraplan.cfm

2016: Engagement Resource Team (ERT)

Members

1. Alder Eskrich
2. Dudgeon-Monroe Neighborhood Association
3. Monroe Street Merchants Association
4. Friends of Lake Wingra
5. Madison Bikes
6. Wingra School
7. Edgewood College
8. University of Wisconsin
9. Vilas Neighborhood Association

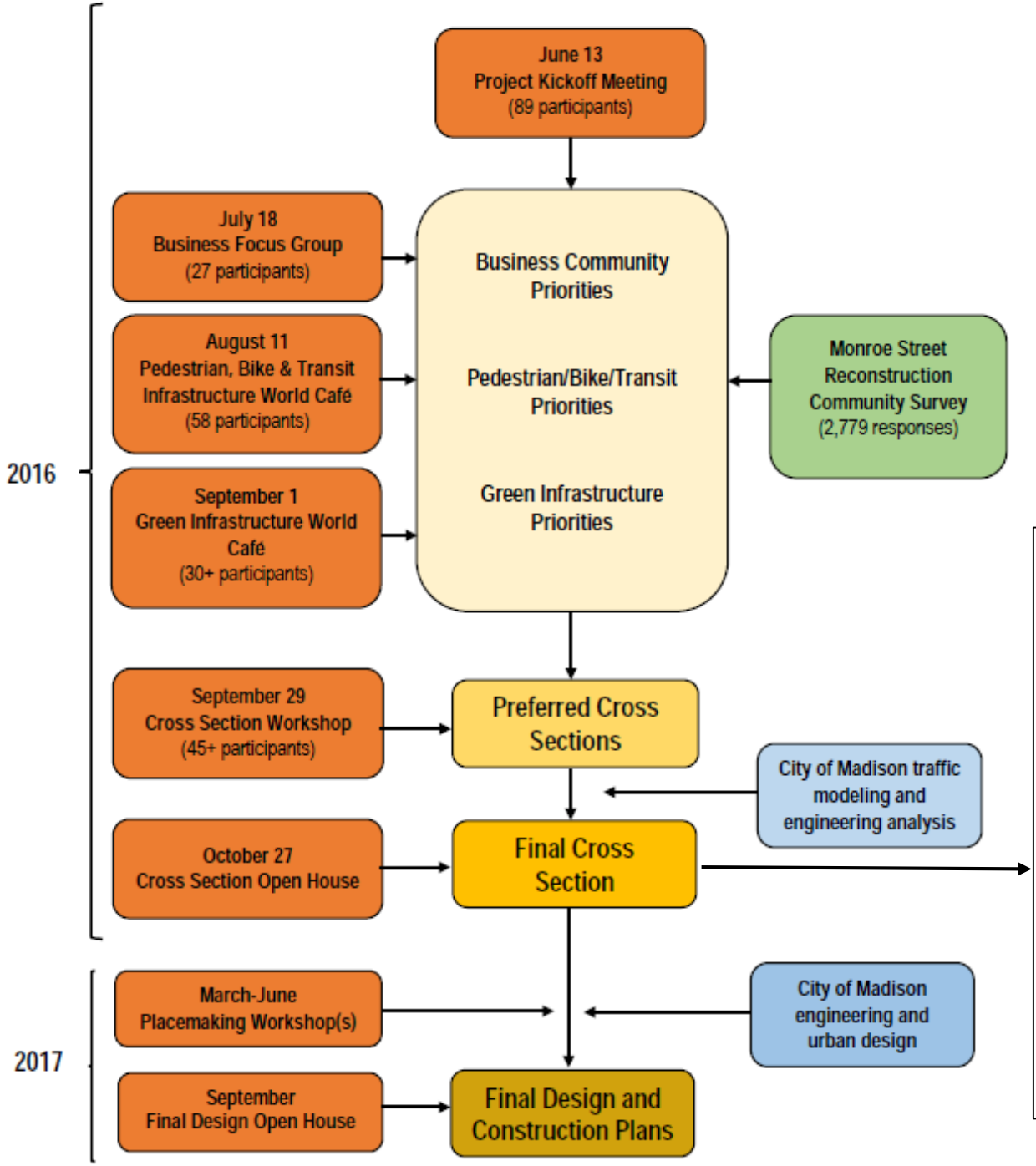
Role

- Help to implement a broadly inclusive engagement process over the next 16-18 months.
- Provide input on appropriate engagement strategies and opportunities.
- Share project information and encourage community involvement.

Organizing Topics

1. Pedestrian Safety and Access
2. Green Infrastructure
3. Bicycle Safety and Access
4. Transit Safety and Access
5. Business Enhancement

Monroe Street Planning Process



City Legislative Process: Public Meetings

11/22: Introduced to Common Council for referral only

11/29: Ped/Bike/Motor Vehicle Commission

12/14: Board of Public Works

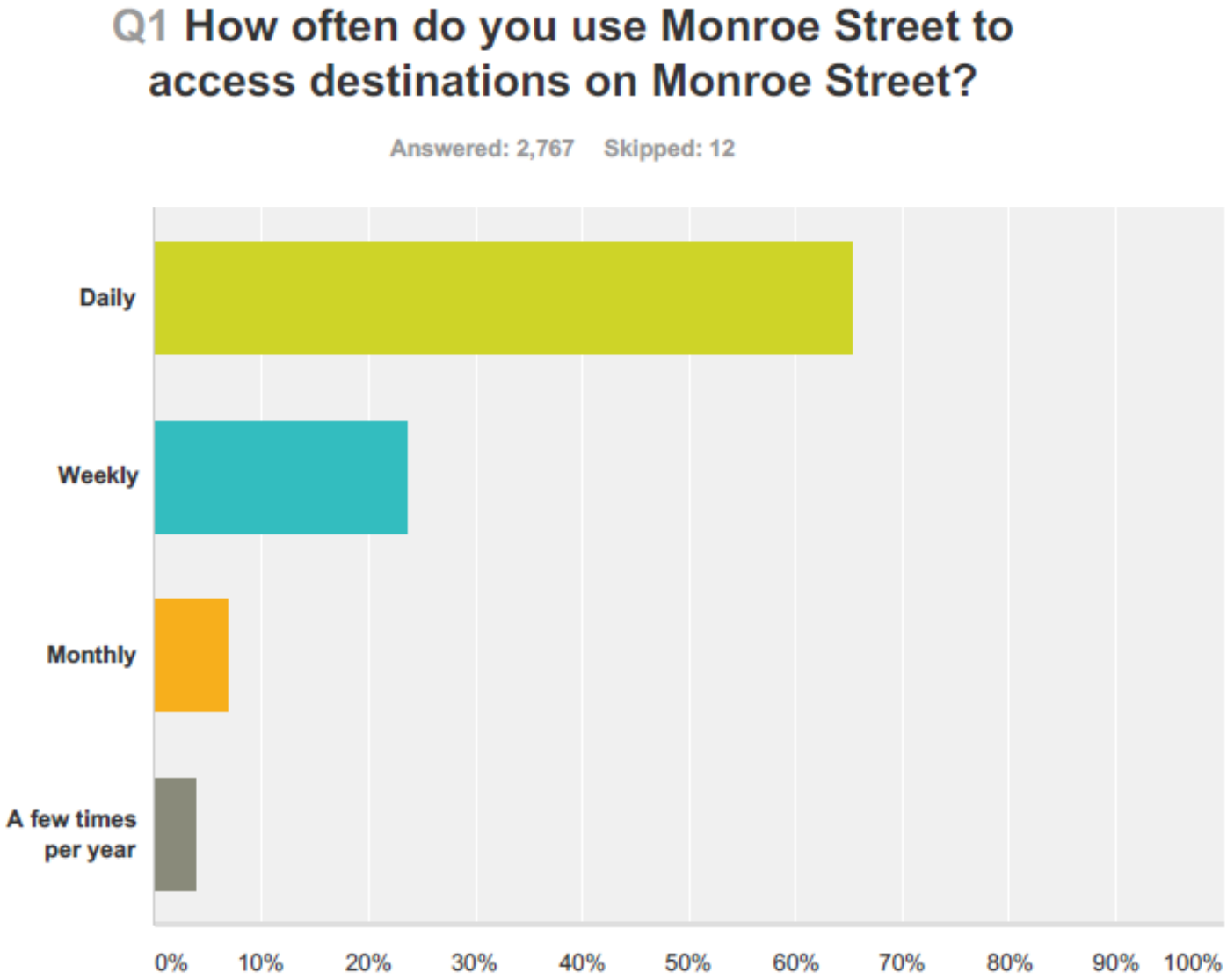
1/3/2017: Common Council for final approval

Community Survey Results

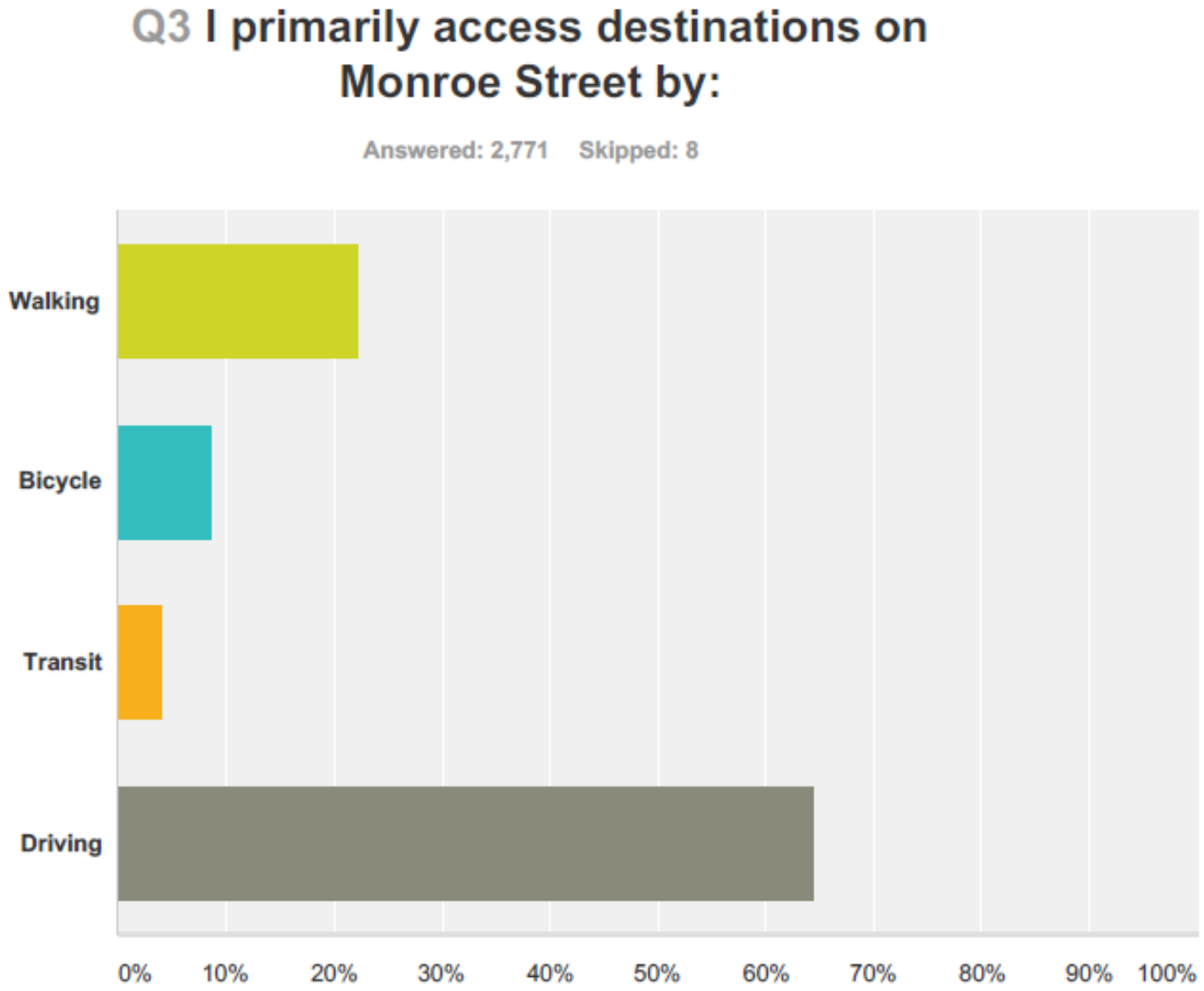
Community Survey Results

- 2,779 responses!
- 63% aged 31-60
- 47% live in a neighborhood other than Vilas or Dudgeon-Monroe
- 33% live within three blocks of Monroe Street
- Respondents include high school and college students, neighborhood residents, visitors, commuters, business owners, parents, etc.

Community Survey Results



Community Survey Results



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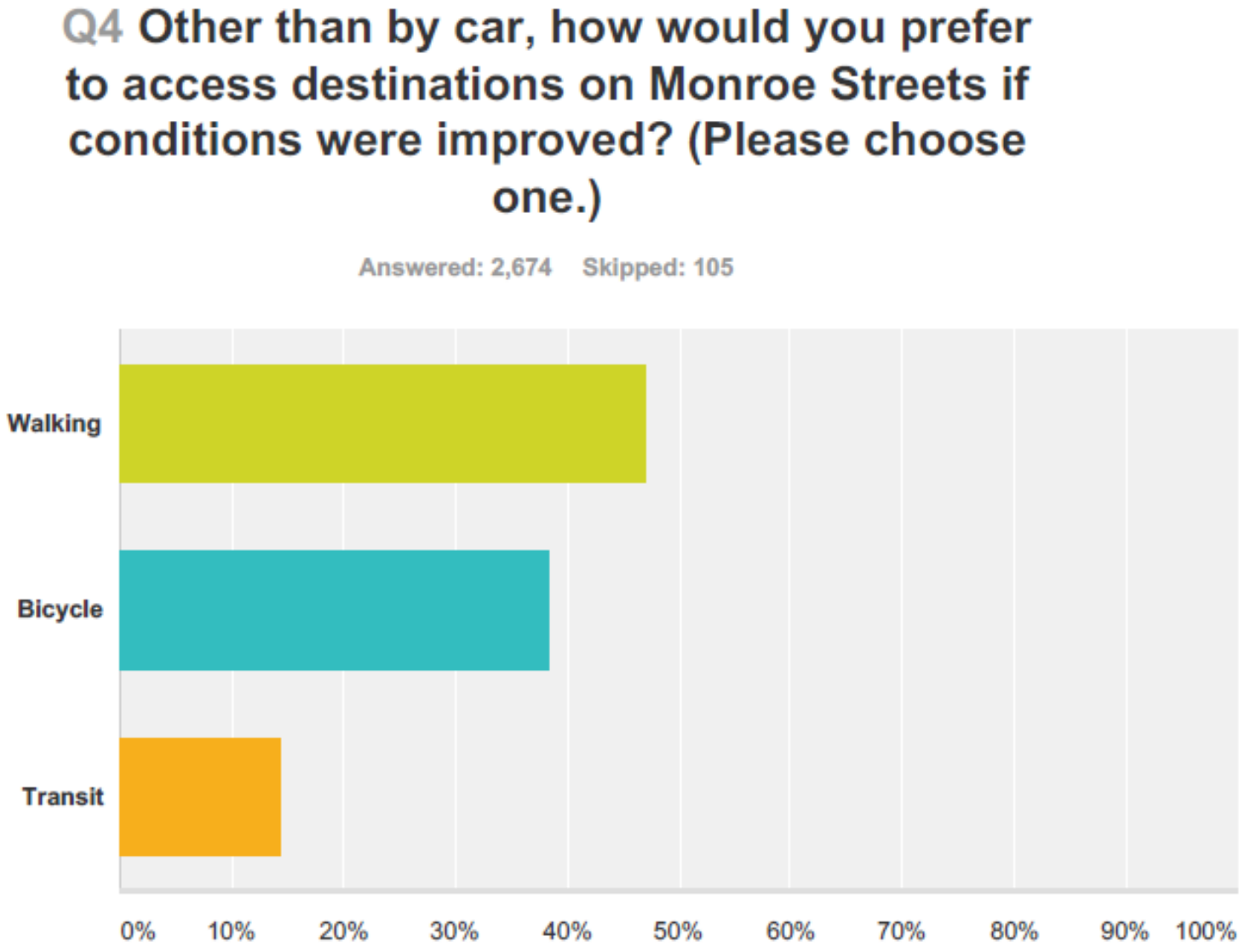
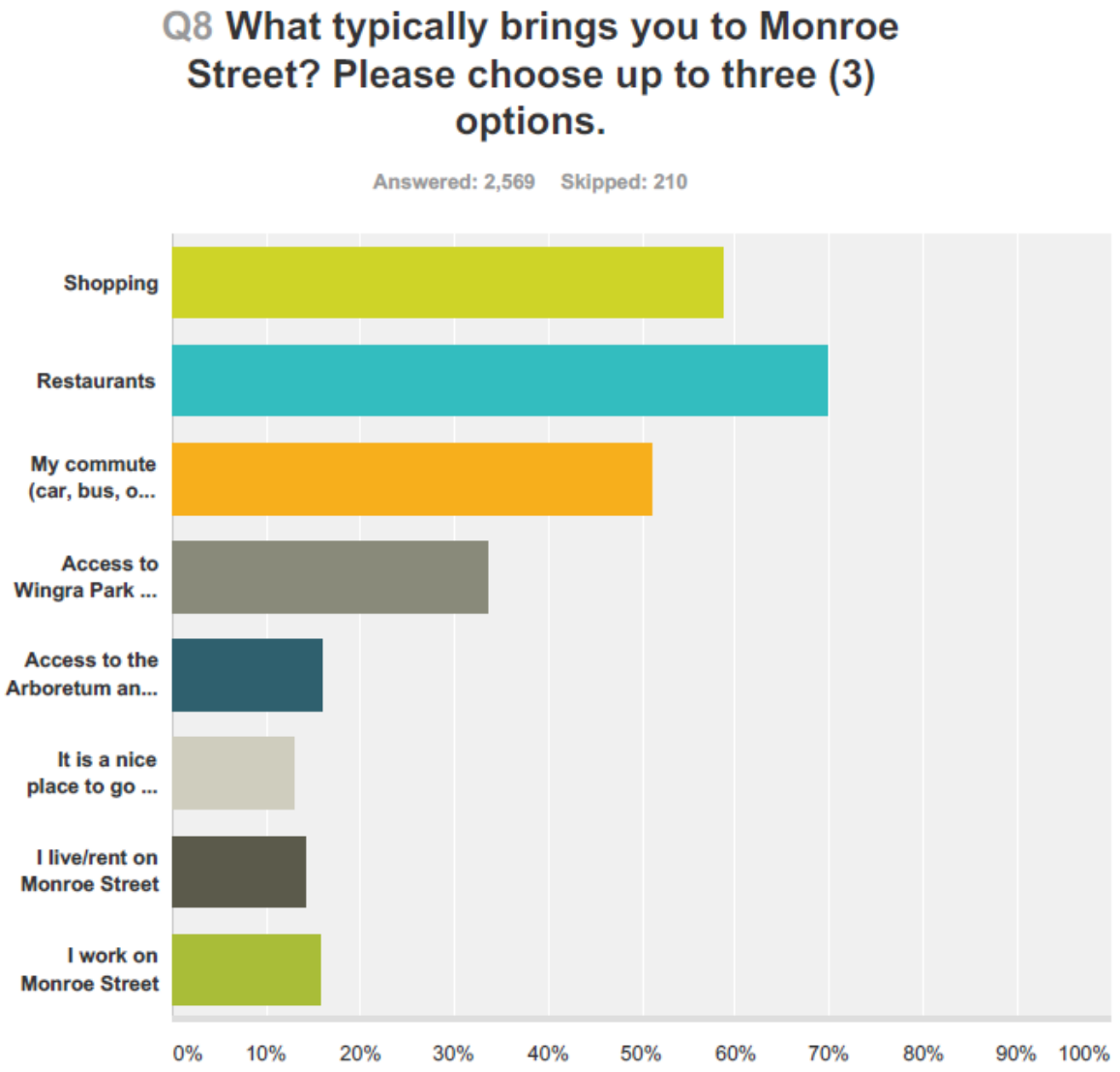


Community Survey Results



1. Restaurants
2. Shopping
3. Commuting (car, bus or bike)

Community Survey Results

What three words would you use to describe Monroe Street to a visitor?

Community Survey Results

What qualities would you most like to see improved or invested in?

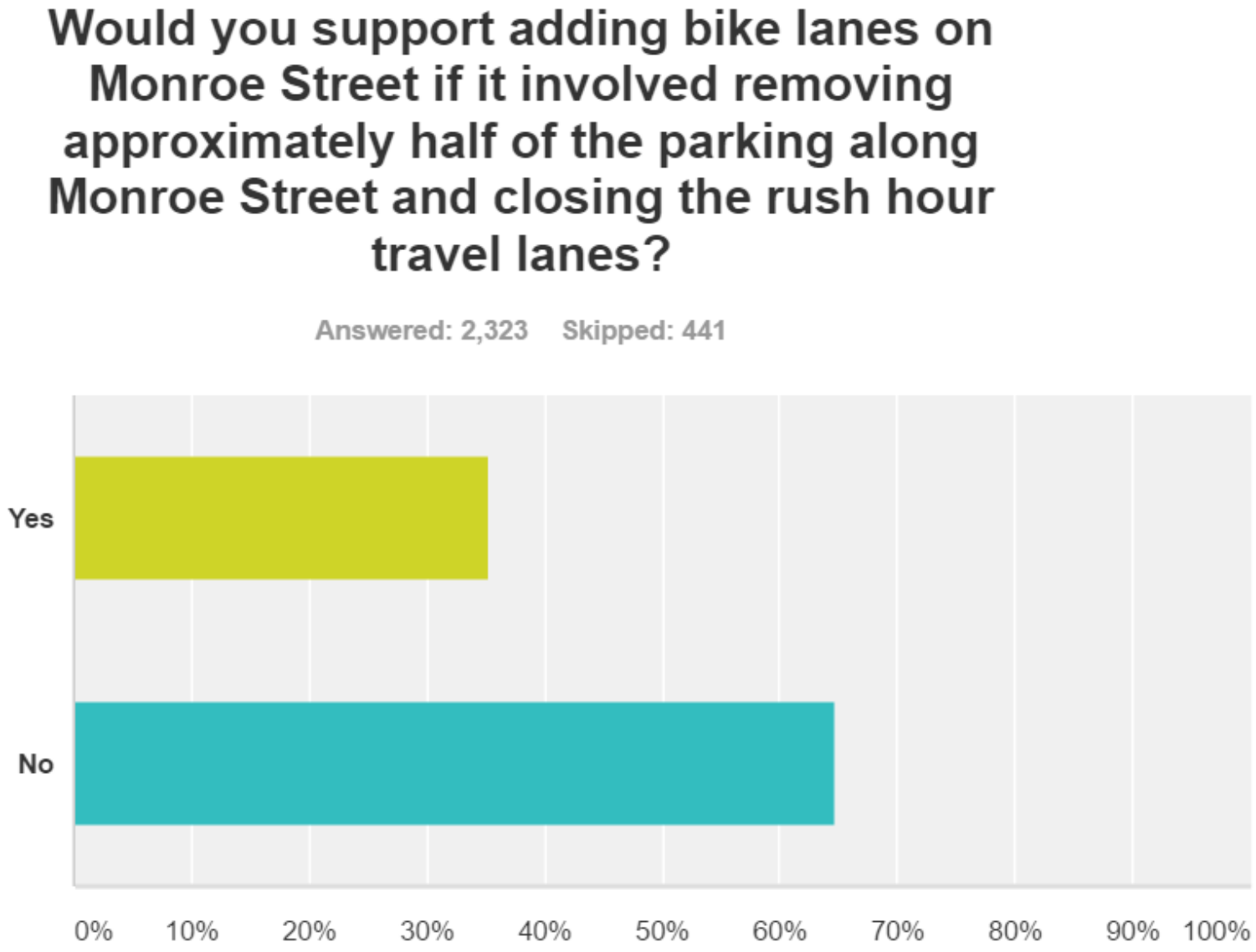
1. **54%: Walkability**
2. **46%: "Green street" with more plant life and sustainable design**
3. **43%: Bikeability**
4. **42%: Comfortable commuting route**
5. **40%: Vibrancy of the commercial districts**

Community Survey Results

What is most important to achieve as a result of the Monroe Street reconstruction?

1. 70%: Better pedestrian-friendliness and safety
2. 65%: A reconstructed street, free of cracks and potholes
3. 51%: Better bike-friendliness and safety
4. 46%: A "greener" approach to stormwater management
5. 42%: Slower vehicular traffic

Community Survey Results



Community Survey Results

46%

It is "somewhat or very important" that Metro continues to operate at the same level of service along Monroe Street after reconstruction.

45%

It is "somewhat or very important" that Metro maintains or improves current travel times and on-time performance after reconstruction.

Additional Community Input

Additional Community Input

- Over 100 letters, emails and phone calls from throughout the community

Community Priorities

Community Priorities

- **Improve walkability and pedestrian safety, especially at intersections.**
- Create a destination street that is convenient and safe for all modes of transportation.
- Reduce traffic speeds.
- Maintain or improve existing parking.
- Ensure predictability in Metro service to improve access for all users.
- Introduce streetscape improvements and more inviting plant life to enhance the pedestrian experience and natural environment.

Community Priorities

- Improve bicycle access by creating safe connections to adjacent paths and increasing bike parking.
- Maintain a comfortable route for commuters, including those accessing adjacent businesses, schools, and institutions.
- Enhance Monroe Street's commercial vibrancy and unique sense of place while retaining its neighborhood feel.
- Be a model of innovation and look for demonstration opportunities to educate the public about sustainability.

Proposed Cross Section & Considerations

Jim Wolfe, Project Engineer

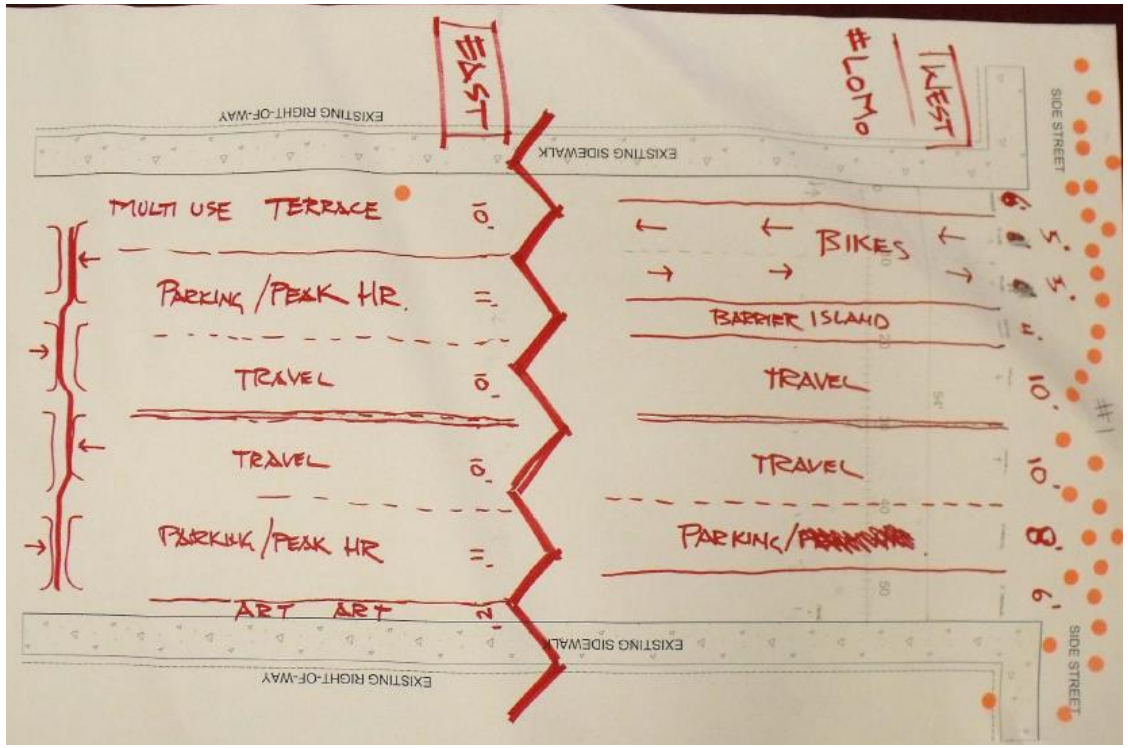
Cross Section Workshop Results

- Groups generated possible lane configurations for Monroe St. cross section
- Cross Sections with most votes used as basis for traffic modeling
  - Several sections very similar from a modeling perspective
- Some aspects of sections could not be directly modeled but were considered
  - Bike lanes
  - Parking impacts (parking study completed)
  - Impacts to Metro schedule & accessibility
  - Tree removals
  - Terrace space for signs, snow storage, pedestrian buffer, etc.

Cross Section #1

30 votes

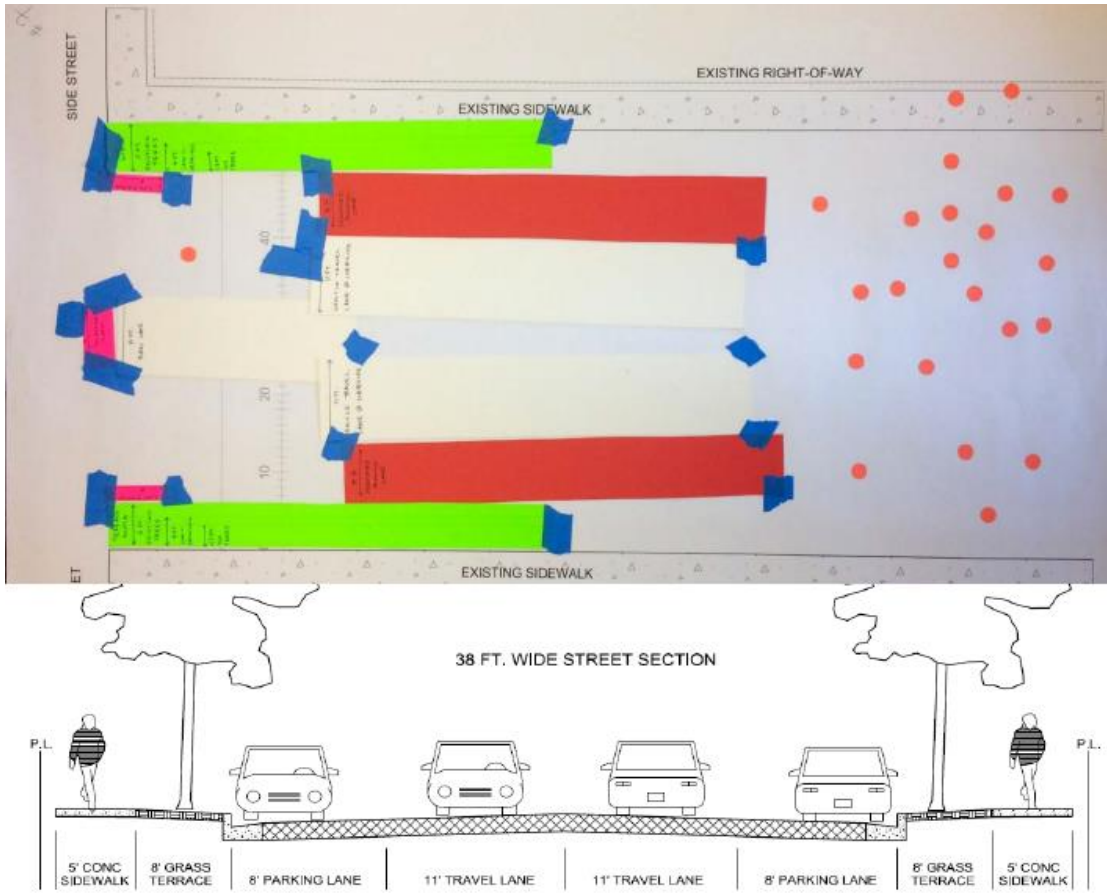
- Two different designs
- East end: 2 travel lanes, 2 parking/peak hour lanes, wider multi-use terrace on one side
- West end: two-way cycle track, 2 travel lanes, parking on one side



Cross Section #2

22 votes

- 2 dedicated parking lanes
- 2 travel lanes
- Left-turn lanes at intersections
- Bumpouts at intersections (some loss of parking)



Cross Section #3

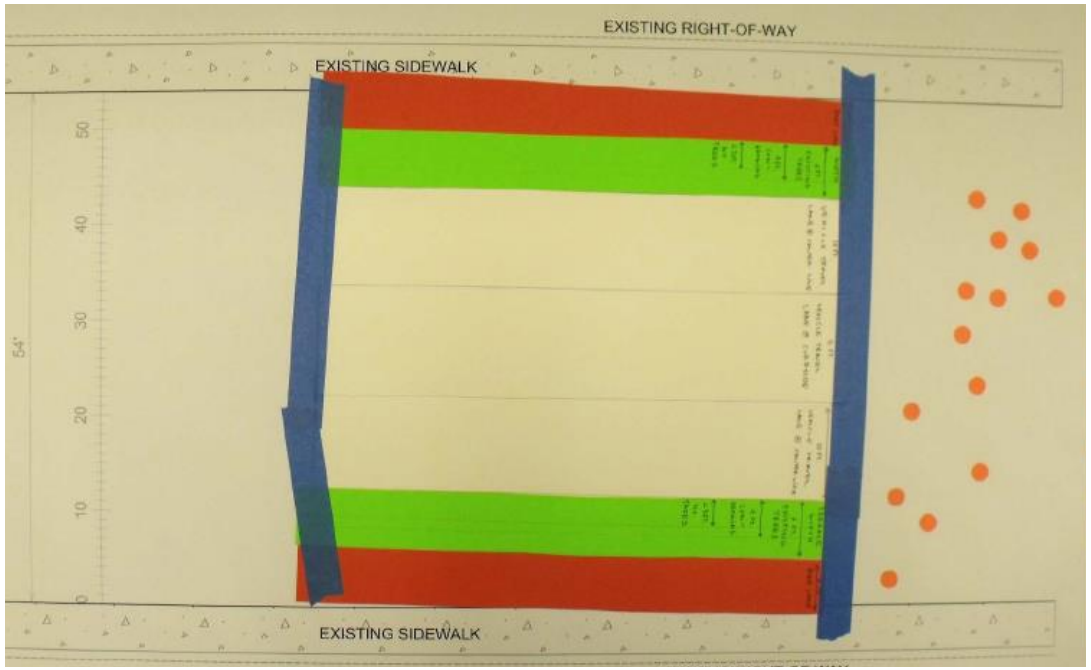
(Near) tie

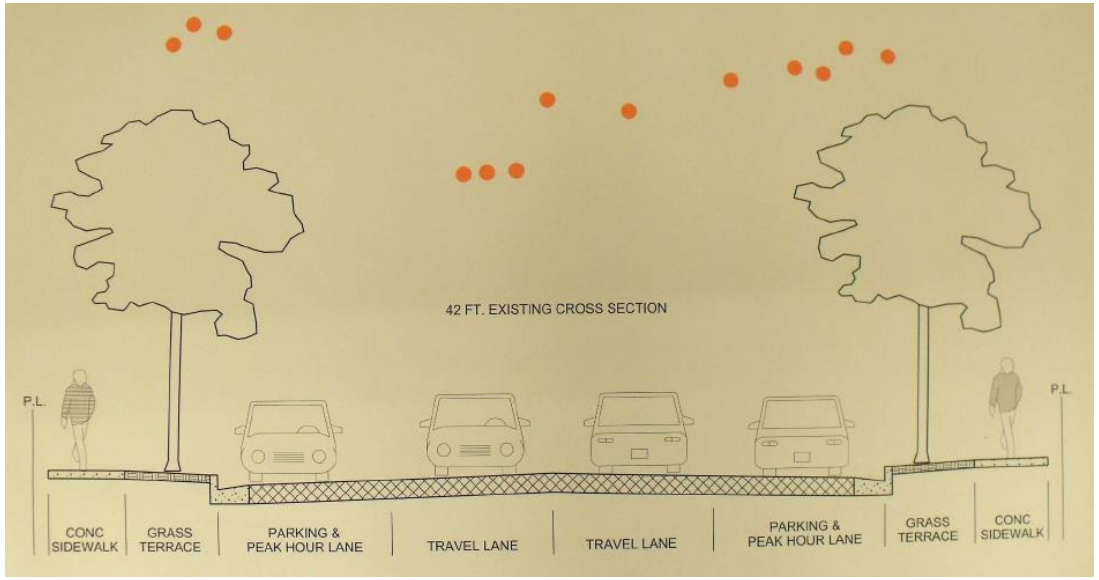
14 votes:

- Bike lanes on both sides, protected by in-street terraces
- Two vehicle travel lanes
- No parking lanes

13 votes:

- Existing cross section





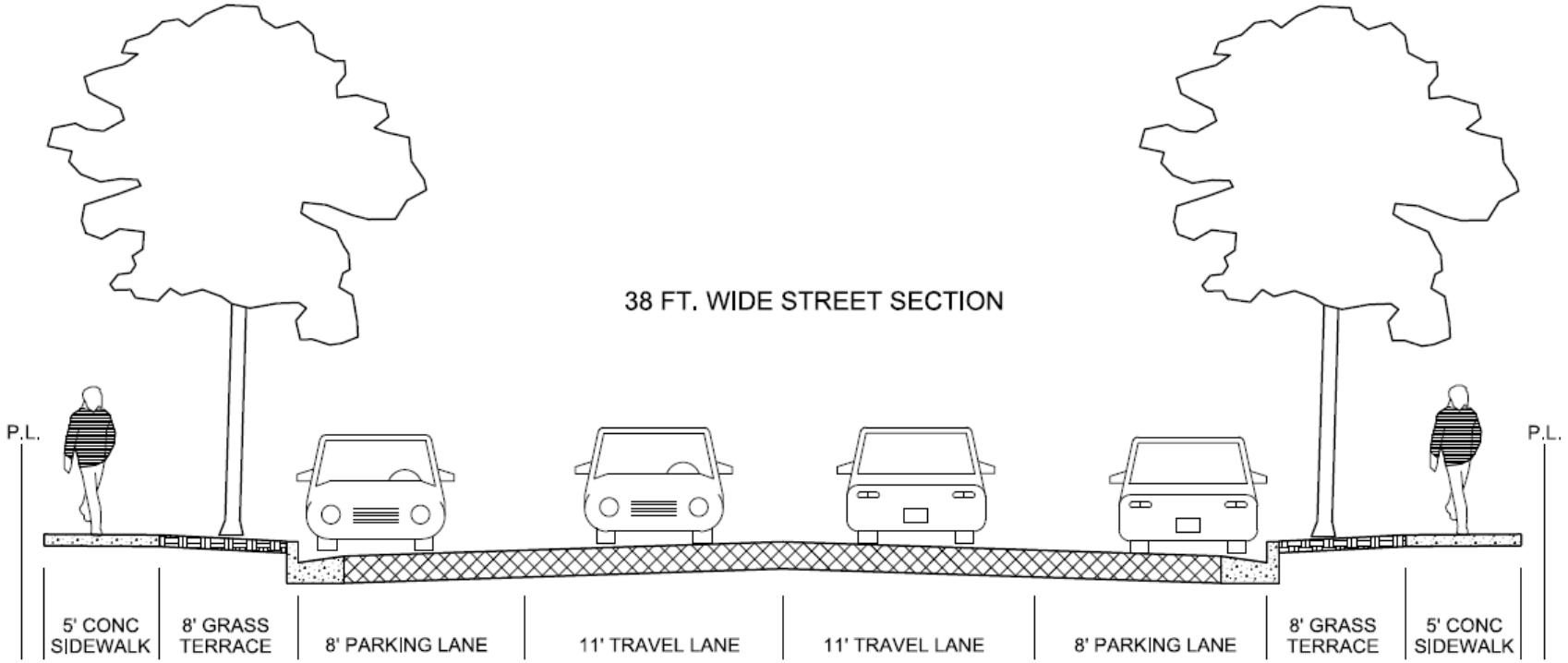
Item	Low Volume Residential	Medium Volume Residential	Non-Residential	Front-loading Residential	Rear-loading Residential (no driveways)	Non-Residential	Minor Arterial	Major Arterial
Daily Volume (ADT)	0 - 750	750 - 1,500	up to 5,000	1,500 - 5,000	1,500 - 5,000	13,000 or less	20,000 or less	30,000 or less
Street Characteristics								
No. of Travel Lanes	2	2	2	2	2	2	4	6
Width (curb-to-curb) (feet)	30	32	34 to 36	41 to 43	27 to 30	55 to 58	64 to 71	87 to 96
On-Street Parking (Y,N)	Y	Y	Y	Y	N	Y	N	N
Parking Lane Width (feet)	7	7	7	7	N/A	8	N/A	N/A
Travel Lane Width (feet)	8	9	10 to 11	10	10	11	11 to 14	11 to 14
Left-Turn Lane Width (feet)	N/A	N/A	N/A	N/A	N/A	10	10 to 12	10 to 12
Raised Median (Y,N)	N	N	N	N	N	N	Y	Y
Maximum Block length (ft)	600	800	800	1,000	1,000	1,000	1,300	1,300
Mimimum Sidewalk Width (feet)	5 (attached) 4.5 (detached)	5 (attached) 4.5 (detached)	5 (attached) 4.5 (detached)	6 to 8	6 to 8	6 to 8	6 to 8	6 to 8
Bicycle Lanes (Y, N)	N	N	N	Y	Y	Y	Y	Y
Transit Accomodation	None	None	Possibly bus stops	Possibly bus stops	Possibly bus stops	Bus Stops	Bus Stops	Enhanced Bus Stops
Landscape strip (Y, N)	Y	Y	Optional	Y	Y	Y	Y	Y
Minimum Landscape Strip Width (feet)	6	6	6	8	15 including sidewalk	15 including sidewalk	15 including sidewalk	15 including sidewalk

- Monroe Street doesn't fit neatly into any of these categories. Monroe's curb-to-curb width ranges from 42-46 feet, with an average daily traffic (ADT) volume of 16,000-20,000 cars.

Traffic Modeling

- Modeled 4 different sections
- Existing cross section
- One lane each direction
- Section without peak hour lane & only left/right turn lane at intersections
  - Dedicated parking lanes throughout day
- Two-Way Left Turn Lane: results similar to the previous cross section
  - Turn volumes not high enough to make a large difference

Traffic Modeling Results

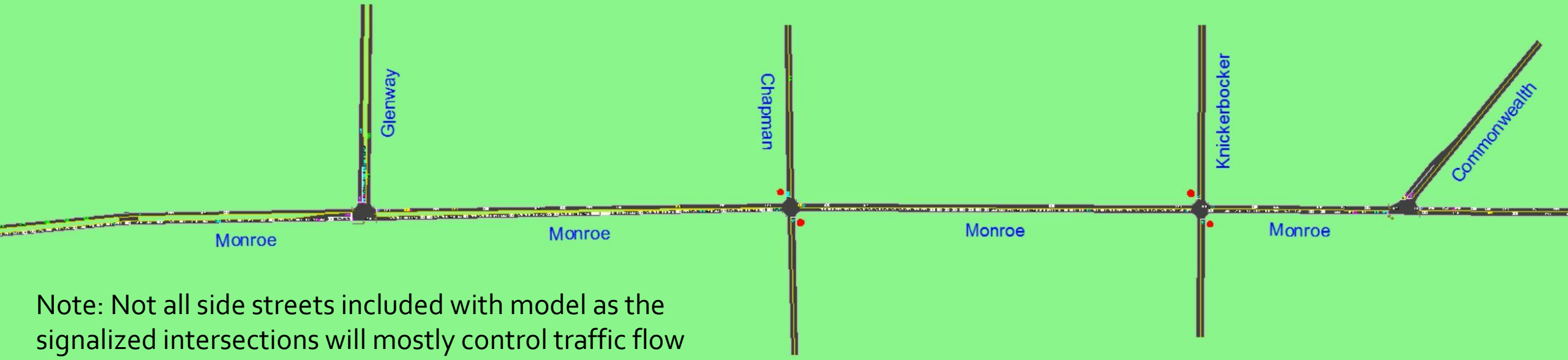


- 1 thru lane in each direction (no turn lanes)
- No peak hour travel lane
- Very long backup
- AM peak backup well into Nakoma Rd and Odana Rd

Traffic Modeling Results: One Lane Each Direction

- Significant traffic back-up beginning at Commonwealth
- Queue continues to build through Glenway
- Backup extends up Nakoma Rd. through intersection with Yuma (would also extend up Odana Rd.)
- Signalized intersections struggle to clear queues as vehicles can't move much beyond the intersection during green phase

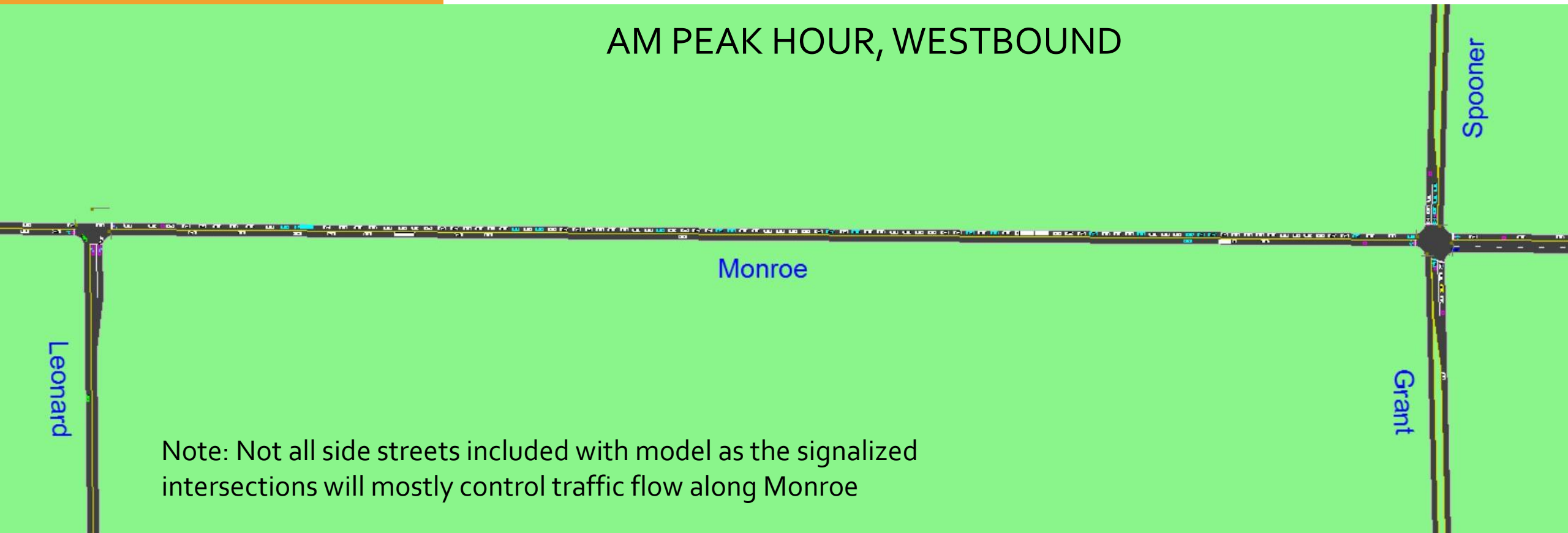
AM PEAK HOUR, EASTBOUND



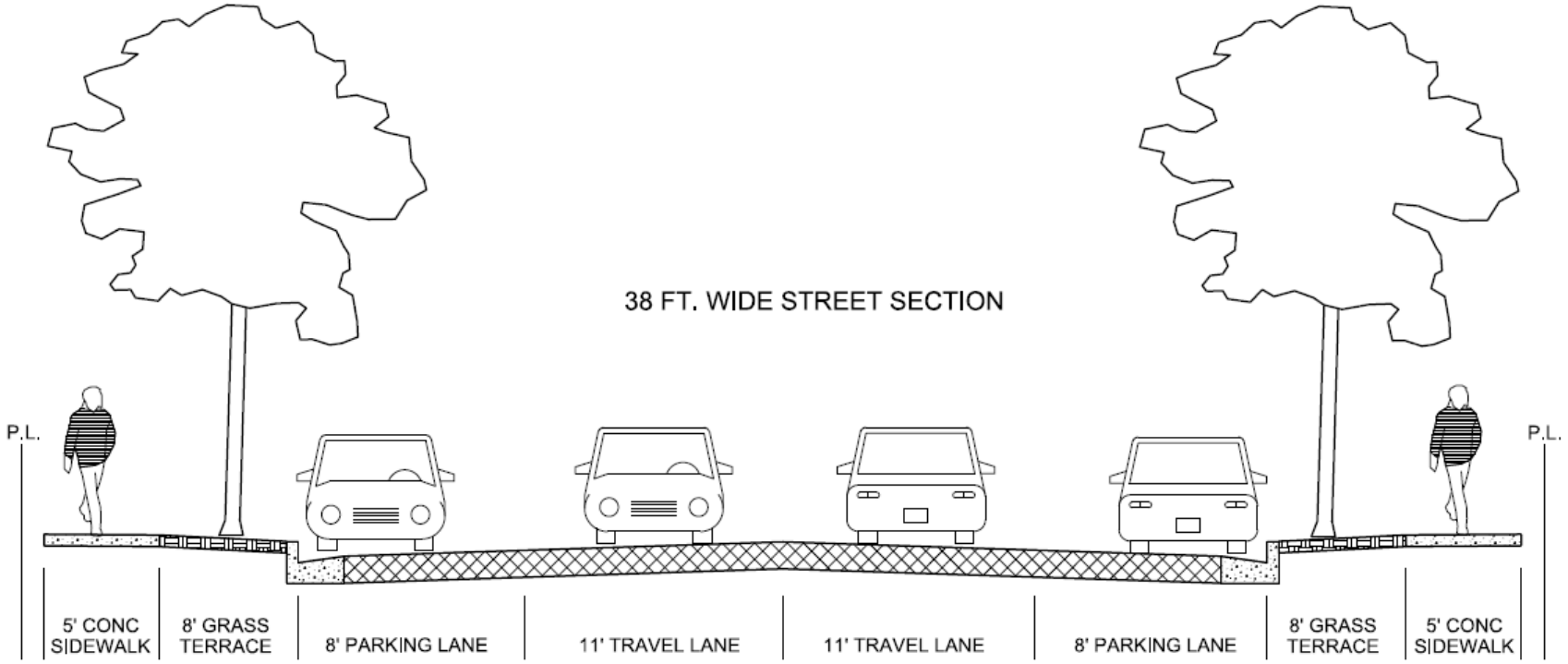
Note: Not all side streets included with model as the signalized intersections will mostly control traffic flow along Monroe

Traffic Modeling Results: One Lane Each Direction

- In the morning, westbound traffic not as congested as eastbound
- Traffic begins to back-up at Leondard (Edgewood driveway)
- Back-up extends to intersection with Grant/Spooner, which will limit traffic flow at this intersection as well

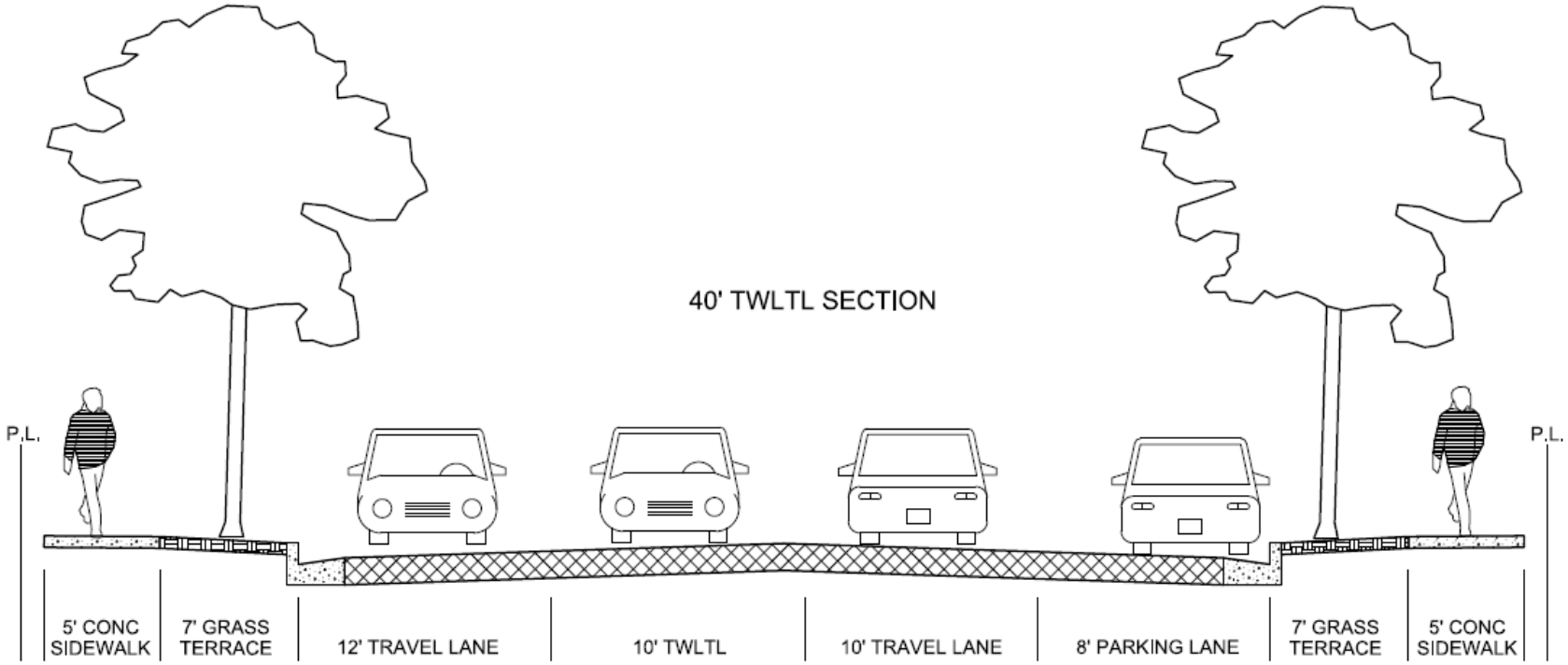


Traffic Modeling Results



- 1 thru lane in each direction
- Dedicated parking lane both sides
- Turn lanes at intersections (no parking)
- No peak hour travel lane

Traffic Modeling Results

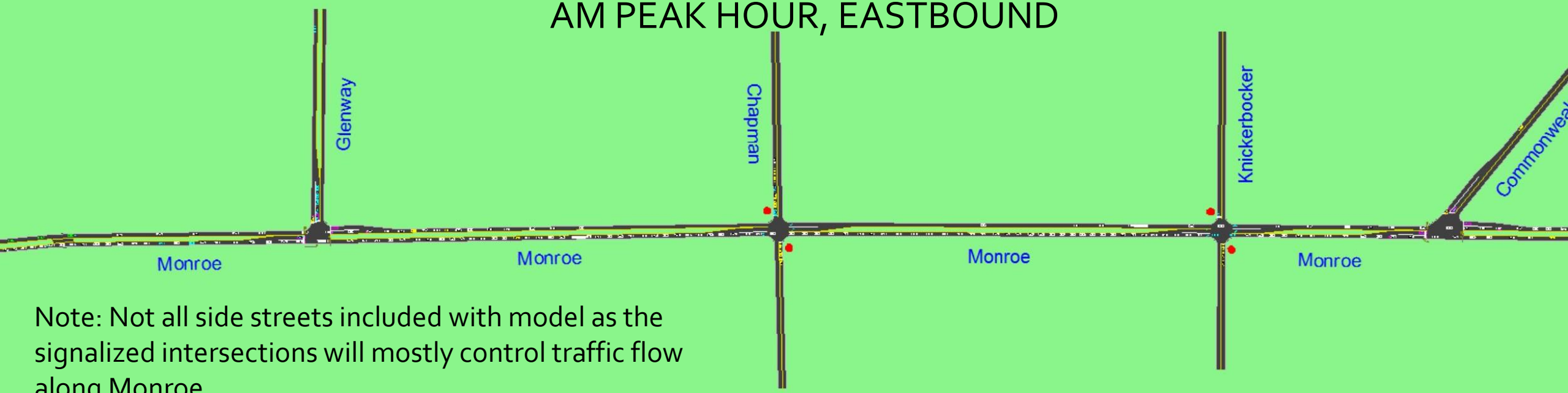


- Two-way Left Turn Lane (TWLTL) throughout
  - Capacity increase during off-peak
- Parking lane one side or bike lanes
- Long backup
- AM peak backup well into Nakoma Rd and Odana Rd

Traffic Modeling Results: One Lane Each Direction with Turn Lanes/TWLTL

- Similar results as model without turn lanes
- Significant traffic back-up beginning at Commonwealth
- Queue continues to build through Glenway
- Backup extends up Nakoma, but doesn't quite extend through Yuma (would also extend up Odana Rd.)
- Signalized intersections struggle to clear queues as vehicles can't move much beyond the intersection during green phase

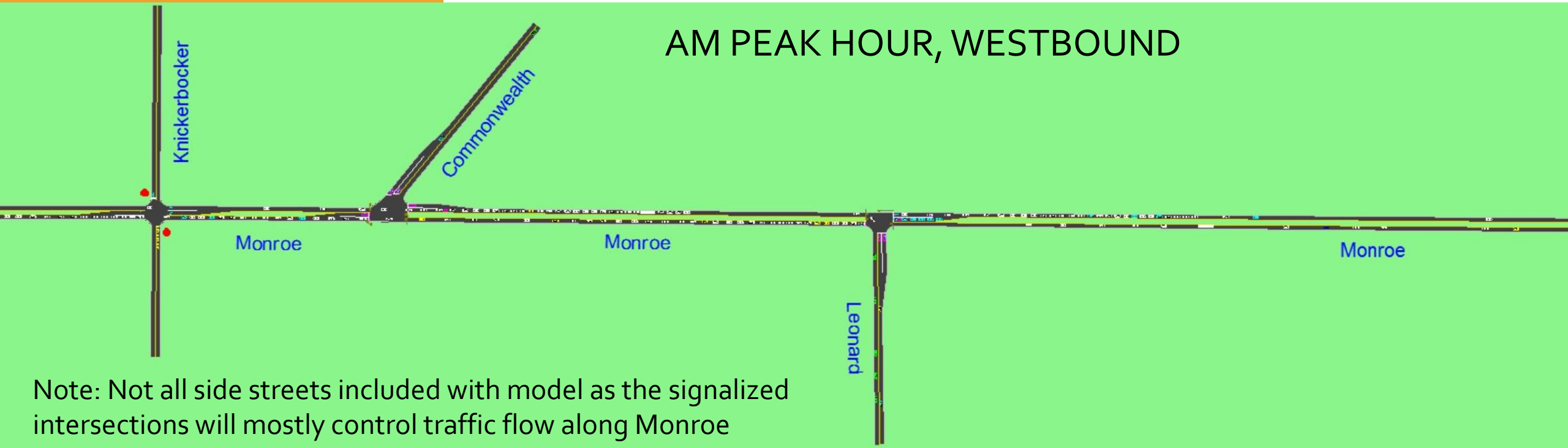
AM PEAK HOUR, EASTBOUND



Note: Not all side streets included with model as the signalized intersections will mostly control traffic flow along Monroe

Traffic Modeling Results: One Lane Each Direction with Turn Lanes/TWLTL

- With turn lanes, morning westbound traffic begins to back up at Commonwealth
- Some back-up at Leonard (Edgewood driveway)
- Neither back-up for outbound traffic extends through another signalized intersection, which improves flow



Note: Not all side streets included with model as the signalized intersections will mostly control traffic flow along Monroe

Impacts of Congestion

- Monroe St. is vital corridor in the City's transportation network
- Unique geography & layout limit available corridors

Impacts of Congestion

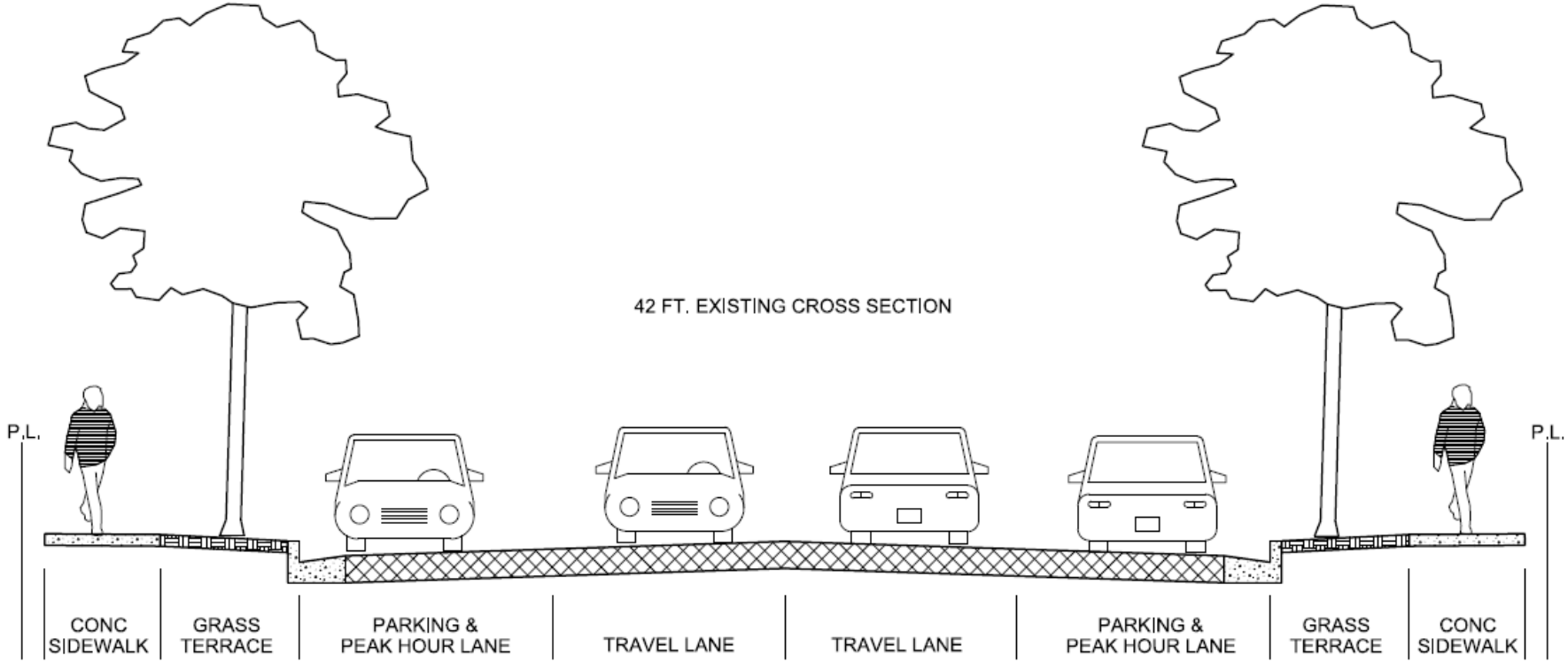
- 14,000 to 23,000 vehicles per day
- Additional congestion on Monroe will divert some traffic to other corridors
  - Regent St.
  - Park St. & Fish Hatchery Road
  - Gregory St./Commonwealth/WestLawn/Keyes
  - Neighborhood streets
- Severe impacts to Metro schedules (equity impacts)
- Environmental impacts including increased fuel consumption & emissions
- Access to Monroe St. driveways, parking & side streets becomes difficult

Impacts of Congestion

- Congestion can create safety issues
- Increase in crashes, especially rear-end
  - 593 vehicle crashes since 2003
- Frustrated drivers more likely to take more risks
  - Accept smaller gaps when making turns
  - Run red lights
  - Less likely to obey RRFBs, yield to peds
  - Pay less attention to surroundings, including pedestrians
- Forces pedestrians to cross through queues

Proposed Cross Section

- Match existing lane configuration & typical width
  - Travel lane in either direction
  - Off-peak parking both sides, peak hour travel lane
- **Includes a number of modifications**



Community Survey Results

What strategies would encourage you to access destinations on Monroe Street via walking?

1. More visible crosswalks
2. Slower automobile traffic
3. Less automobile traffic

1,268 responses

Pedestrian Improvements

- Pedestrian safety a high priority through all meetings & the survey
- Some features have been researched for FHWA and have crash reduction factors (CRF) www.cmfclearinghouse.org

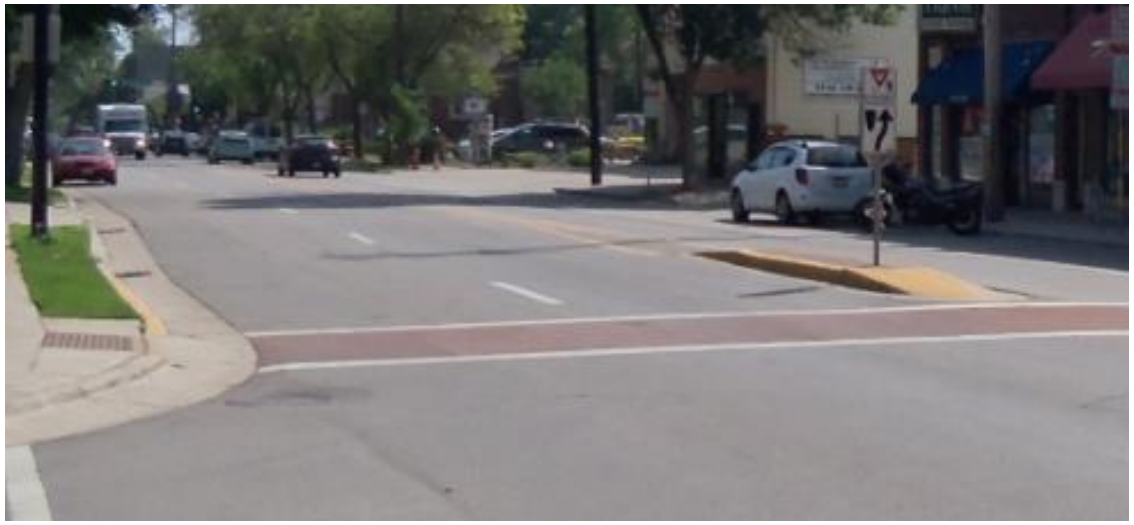
- Installed Rectangular Rapid Flashing Beacons (RRFBs)
  - Improve visibility & expectation
  - Installed at 6 intersections
  - Will remain following project
  - Continue to receive feedback

Pedestrian Improvements

- Install 3 raised intersections
  - Glenway
  - Knickerbocker
  - Harrison
- Include highly-visible, colored cross walks
- Speed reduction (large speed hump)
- Unifying theme through corridor

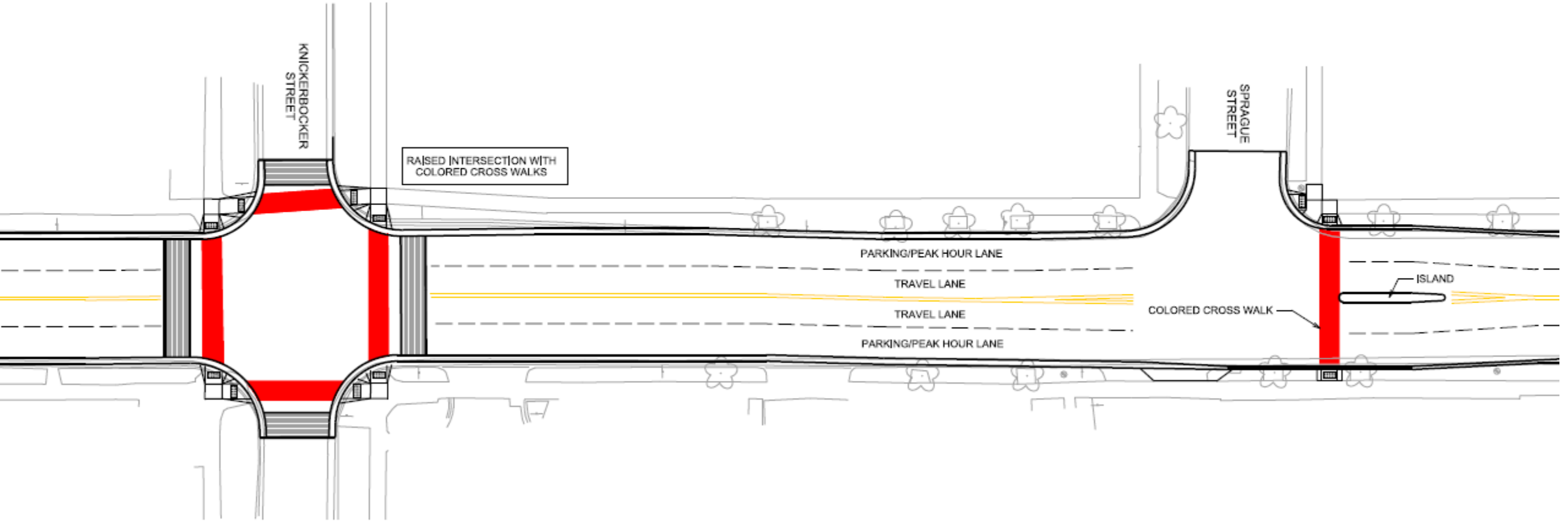
Pedestrian Improvements

- Install additional Pedestrian Islands
  - Coordinate locations with bus stops, RRFBs
- Improve safety of crossing
  - Allow for 2-stage crossing
  - Improve visibility & include yield signage
  - Crash reduction up to 46%
- Can also include colored crosswalk
  - High-visibility crossings can reduce crashes up to 40%
- Also provide for some traffic calming



Pedestrian Improvements

- Knickerbocker – Sprague Example



Pedestrian Improvements

- Modify traffic signals to improve pedestrian safety
- Include pedestrian countdown timers
  - Crash reduction up to 70%
- Leading pedestrian interval
  - Signal phasing starts with "walk" signal before green
  - Crash reduction up to 45%
  - Already in at Grant St.

Pedestrian Improvements

- Narrow between Harrison & Regent from 46’ to 44’
  - Constrict lanes further to slow speeds
  - Shorten crossings
- Additional high-visibility cross walks
  - Crash reduction up to 40%
- On-street parking during non-peak constricts street, slowing speeds and buffering pedestrians
  - TWLTL or bike lanes can create more open feeling that leads to higher speeds

Business Considerations

Figure A-2: Locations of the Three Commercial Nodes

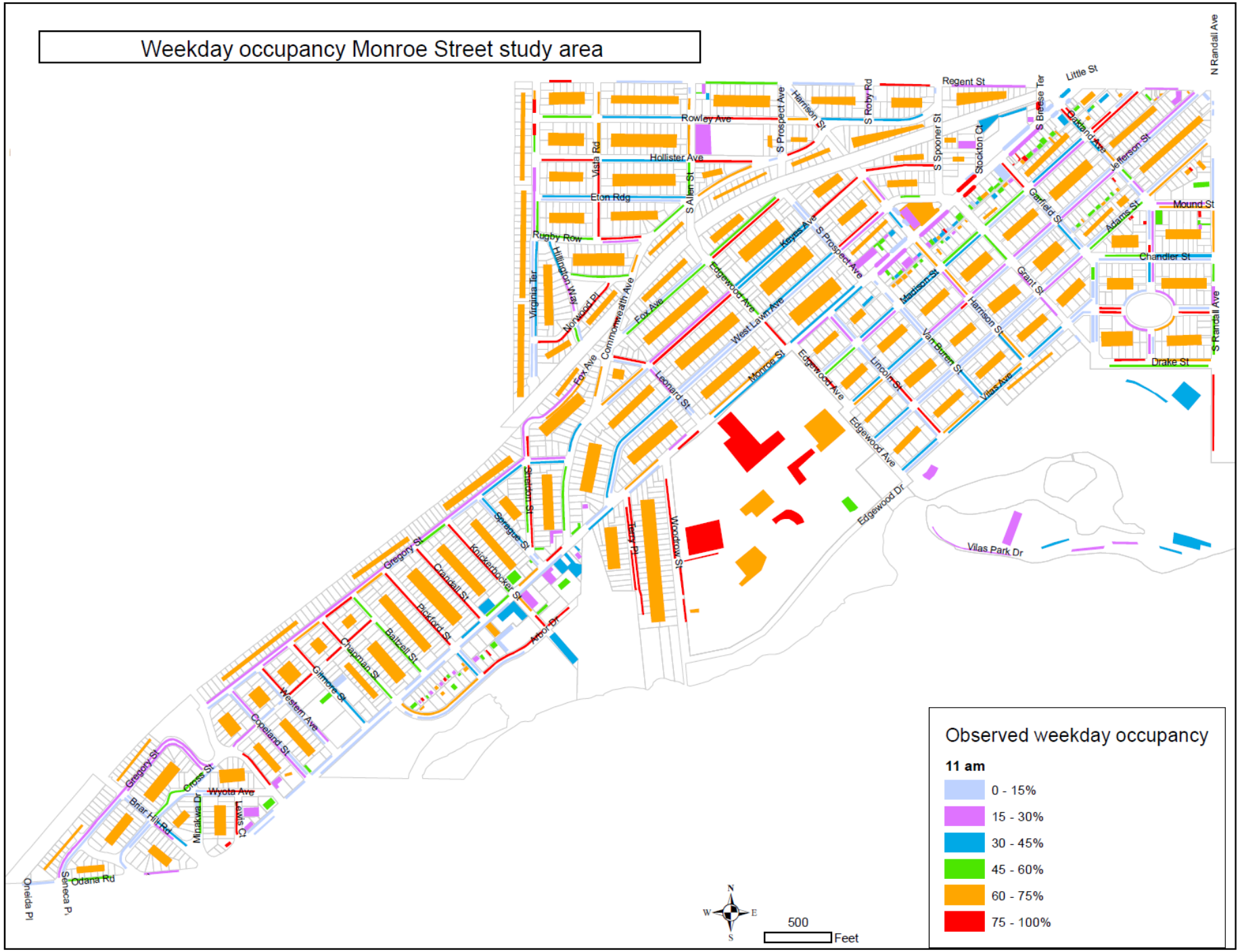
Business Considerations

- Business districts are a big part of what makes Monroe unique & vibrant
- Main concerns from Business Focus Group
  - **Maintain or increase parking availability**
  - Pedestrian safety & slower traffic
  - Maintain flow of traffic & Metro schedules
  - Make Monroe St. destination
    - Placemaking discussions later

Business Considerations

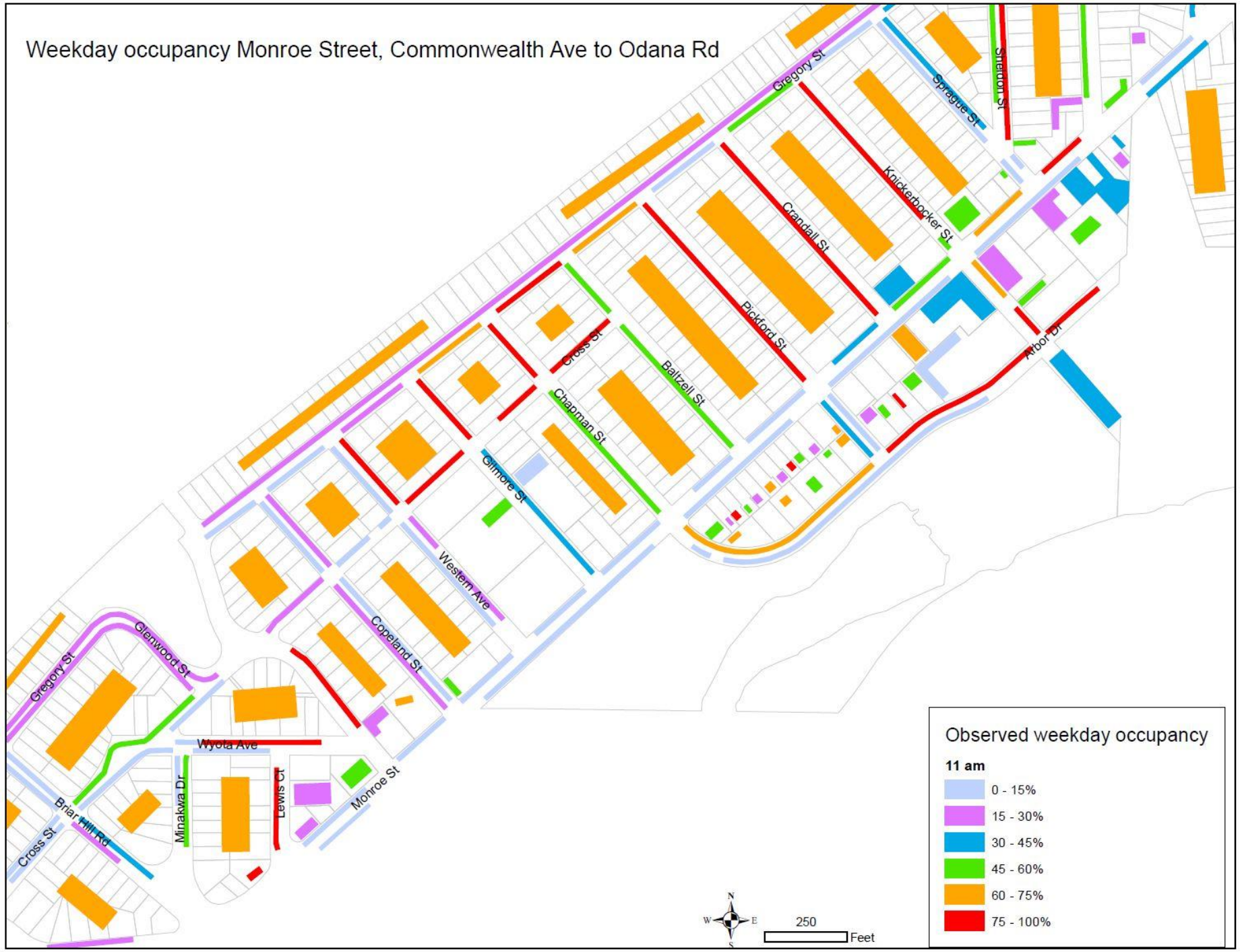
- The population of the 1/2 mile pedestrian market for Monroe Street is just over 2,500.
  - The additional ½ mile pedestrian employee market adds just over 1,000 during the day.
- The population of a typical 1/2- mile urban markets that relies primarily on pedestrian traffic is 15,000-20,000 people.
- Many business on Monroe are specialty and regional destination retailers that depend on patronage from outside the neighborhood.
- Loss of parking on Monroe impacts ability of some customers to get to businesses
  - Would also force more parking to take place into the neighborhood

Parking Study



Parking Study

Parking Study



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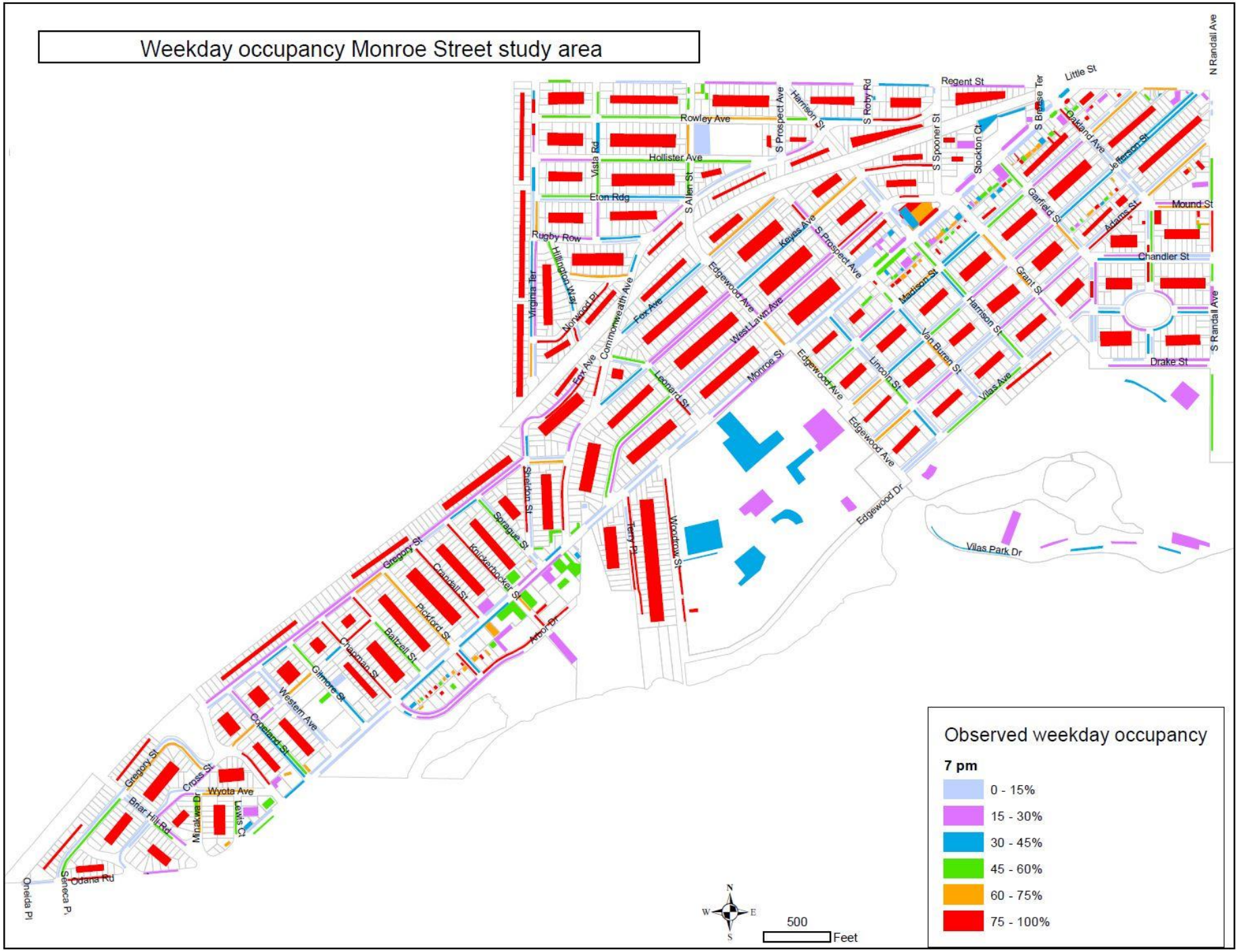

Parking Study

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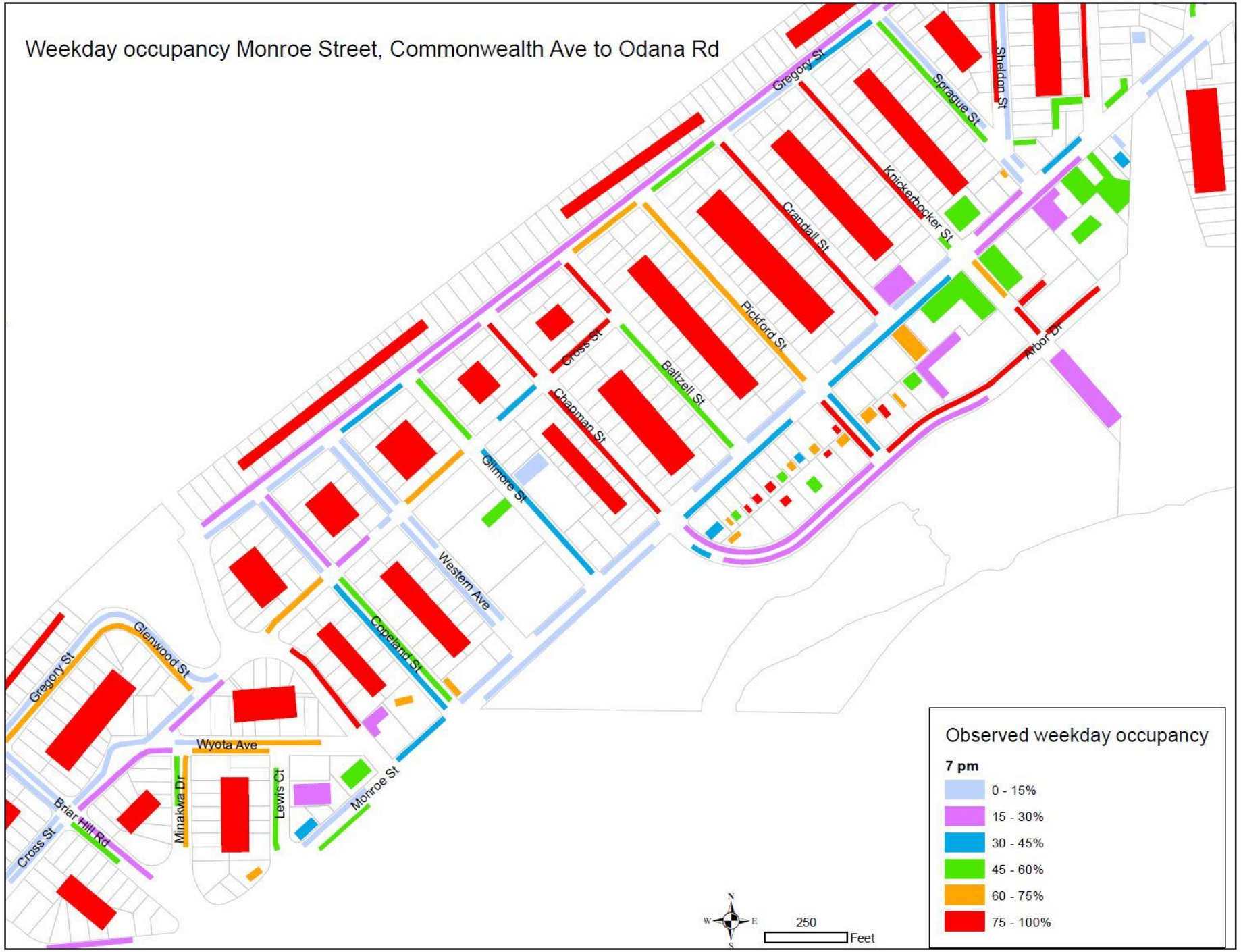
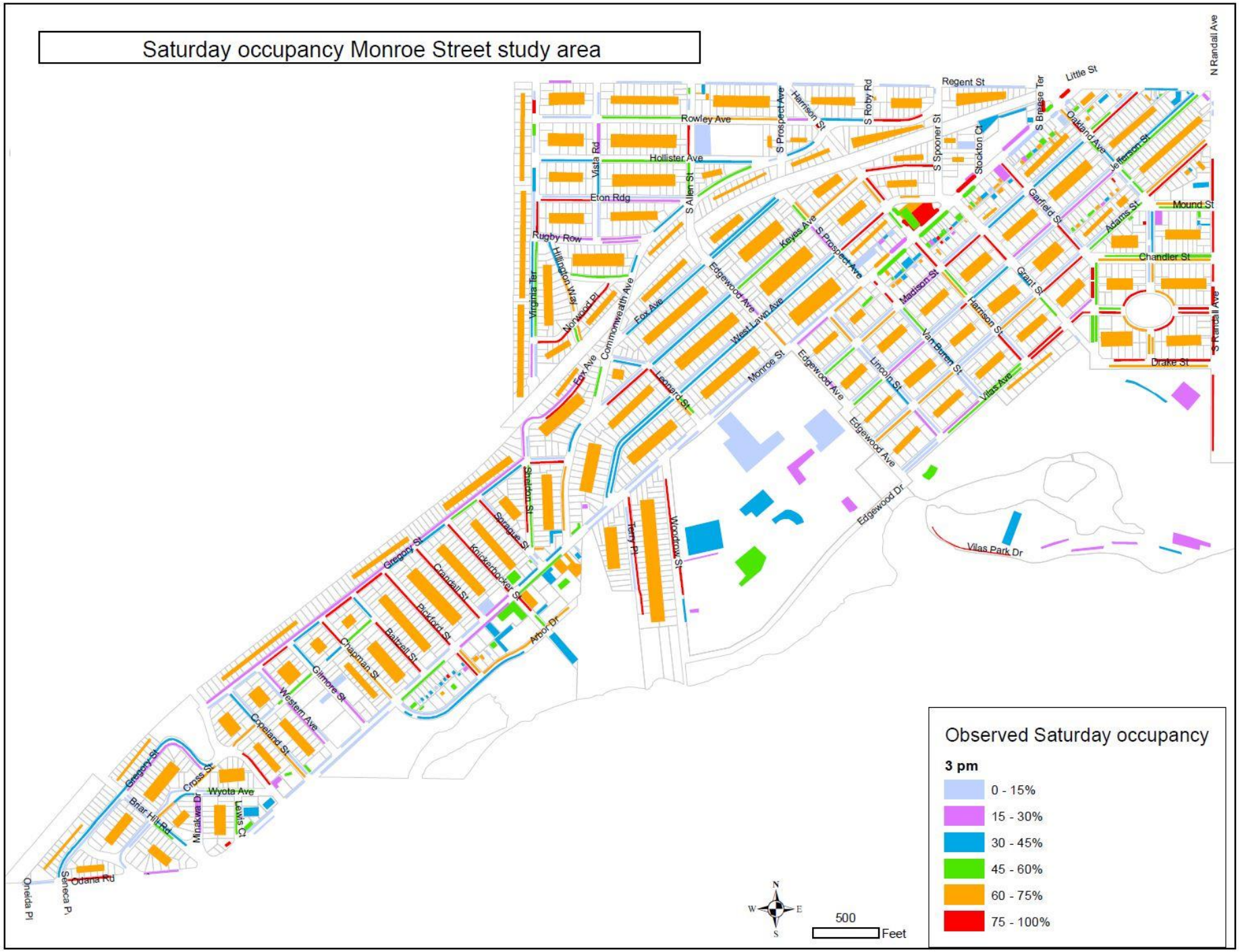
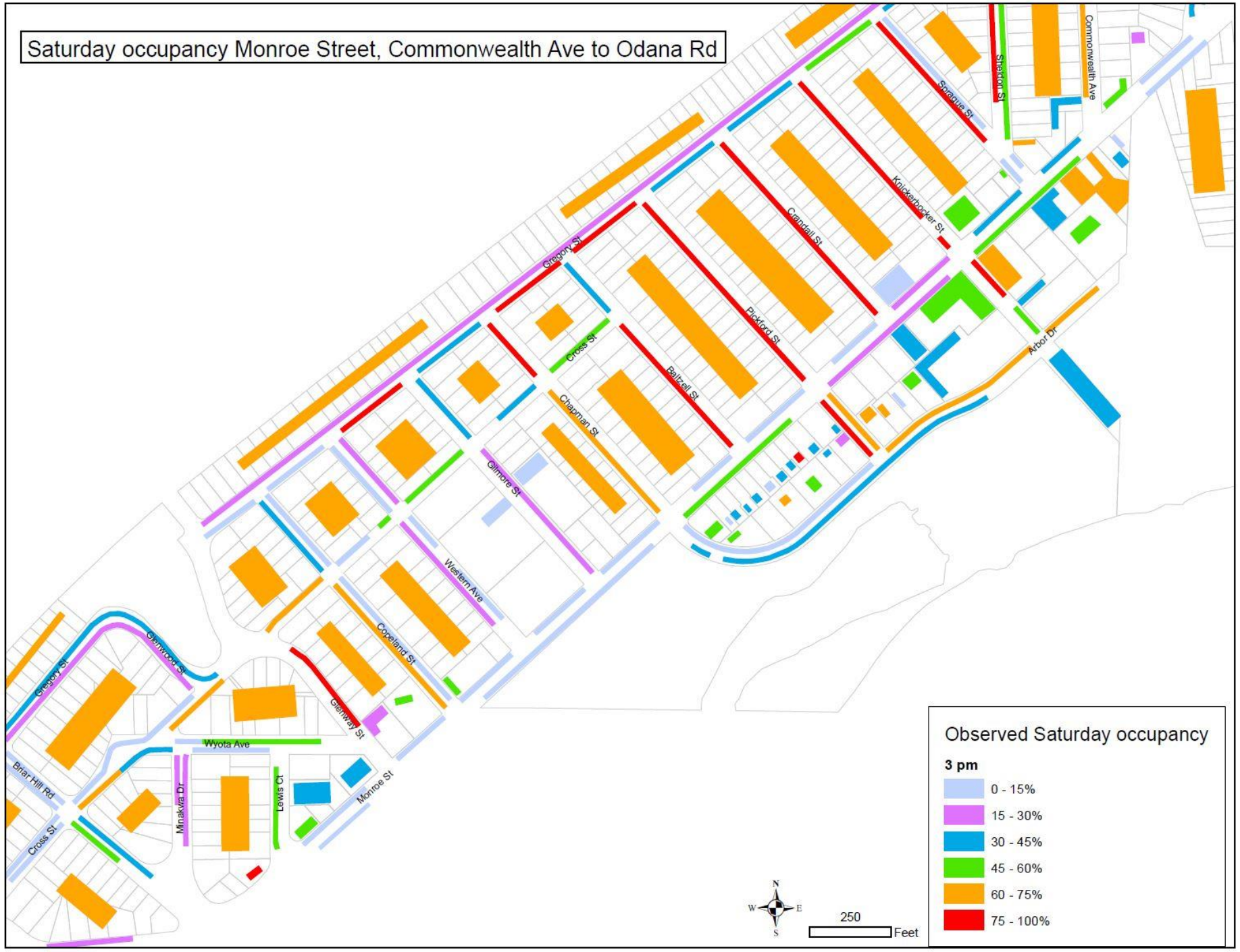


Parking Study



Parking Study

Parking Study



Parking Study Summary

- High demand for parking, especially near business districts
- Limited amount of on & off street parking
  - High demand, but not completely used
  - If not enough available, customers may not stop
- More challenging during winter
- Very high demand on days with special events such as Badger home game days
- Parking spaces also used by businesses for other events

Existing Bike Route Map

Bikeability Survey Results

What statement do you most agree with regarding potential bicycle enhancements on Monroe Street?

2,390 responses

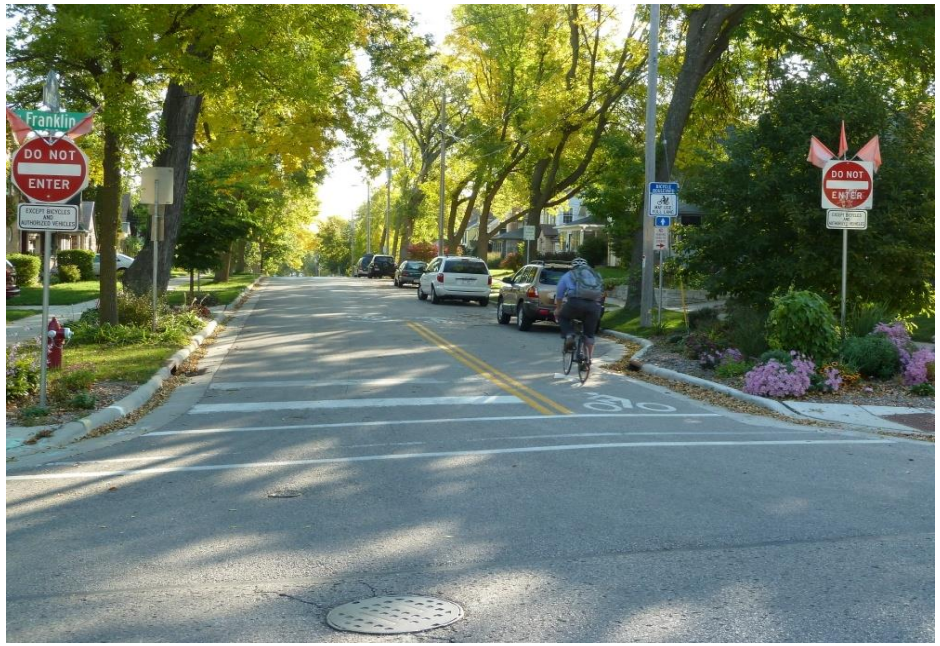
1. 30%: I would most like to see a bike path through Wingra Park, connecting Edgewood Drive to Arbor Drive.
1. 21%: I have no opinion about bicycle enhancements on or adjacent to Monroe Street.
2. 20%: I would most like to see better bicycle connections made from existing adjacent bike paths to destinations on Monroe Street.

Bike Connectivity

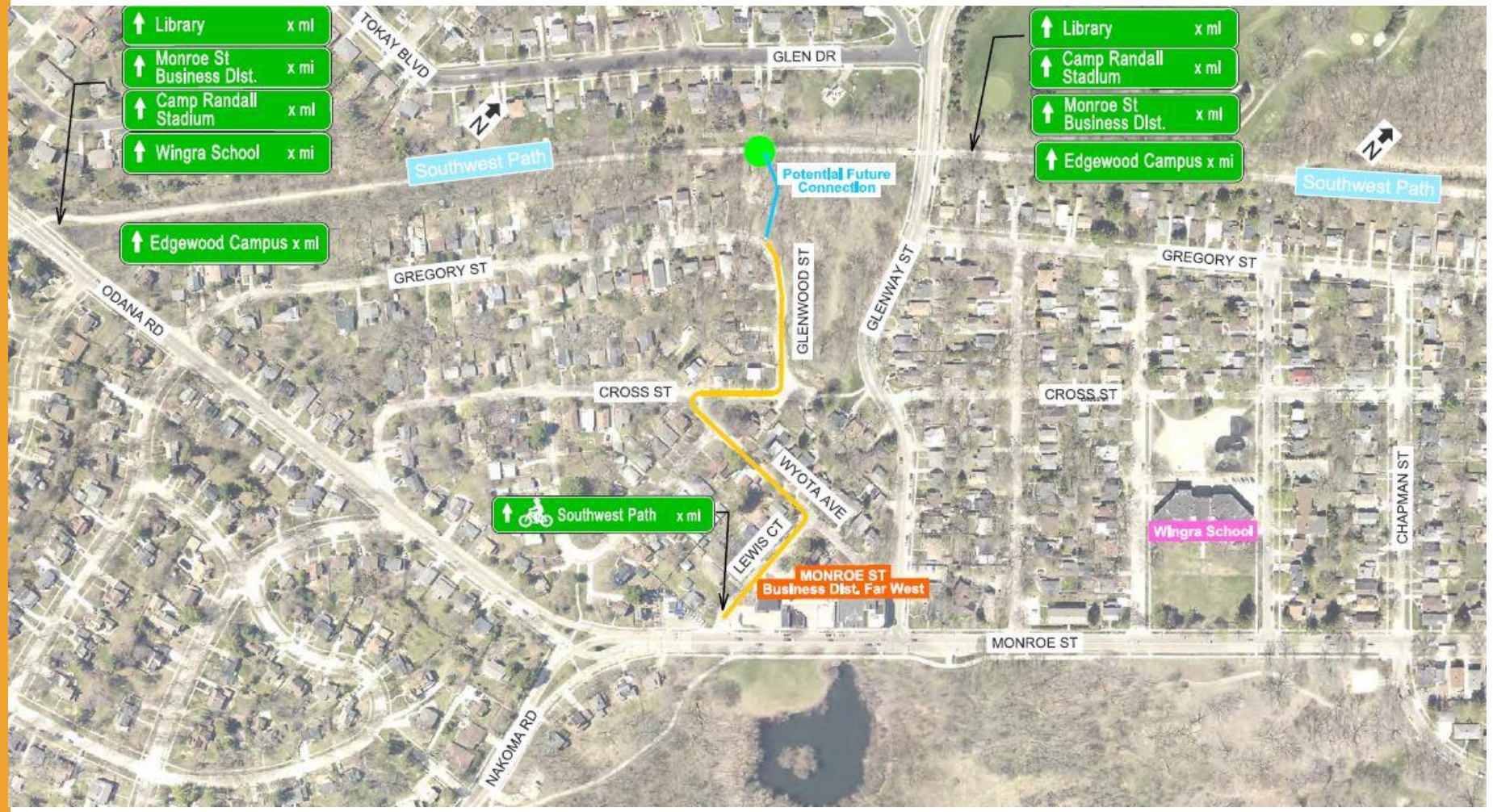
- Improved signage
  - Way-finding
  - Bike route signs
- Pavement markings

- Priority locations for potential connections:

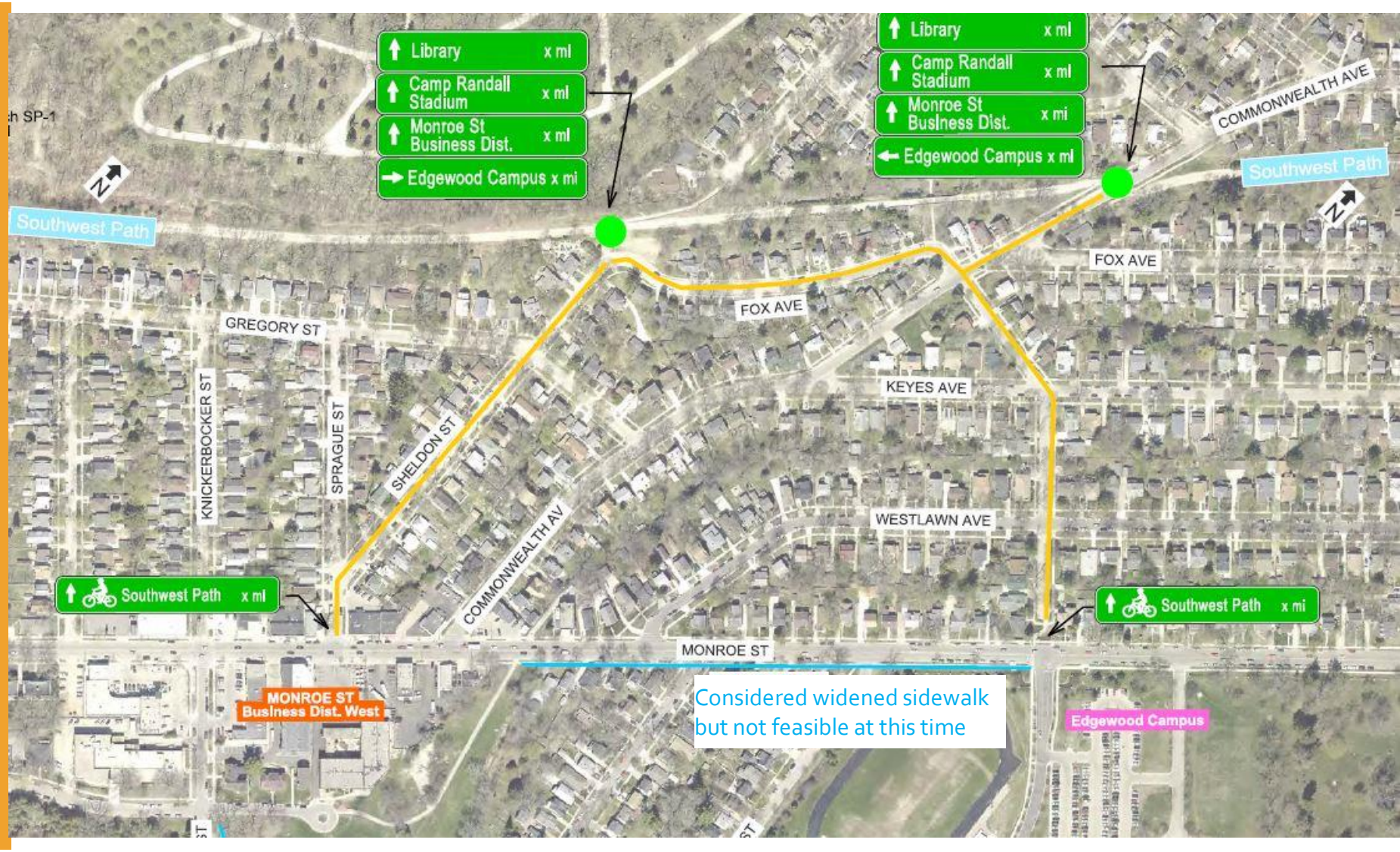
  Schools, library, stadium, business districts



Bike Connectivity



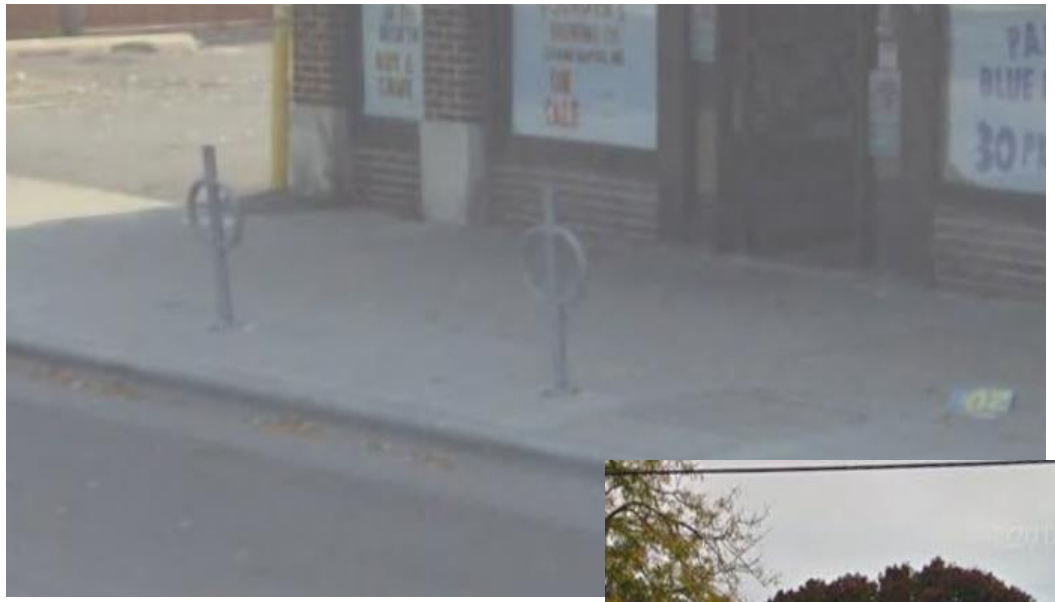
Bike Connectivity



Bike Connectivity

Bike Connectivity

Improved Bike Parking

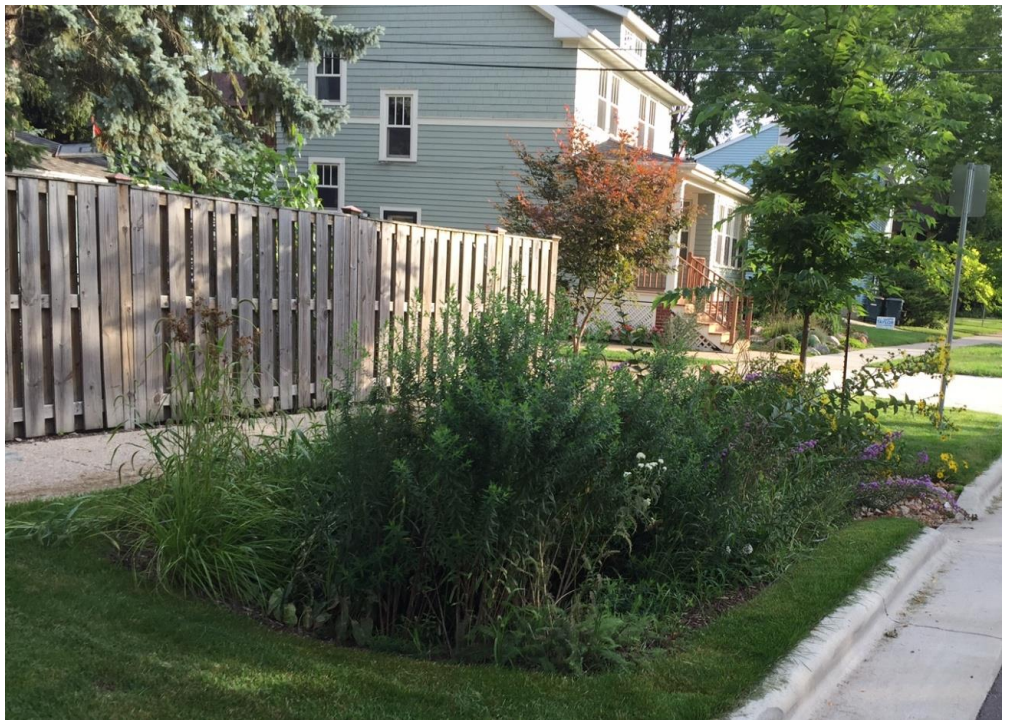


Green Infrastructure

- Proposed cross section limits opportunities for green infrastructure on Monroe
- Explore opportunities outside the main Monroe St. corridor

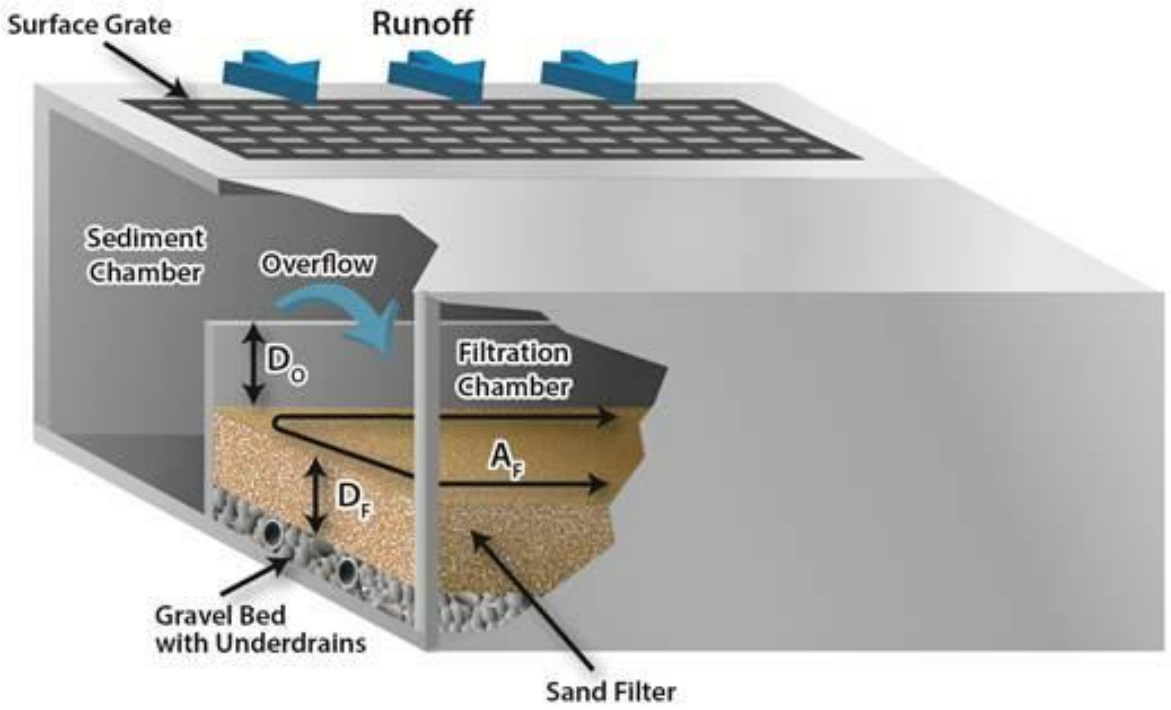
Green Infrastructure

- Opportunities for rain gardens on side street terraces
- Potential locations
  - Gilmore
  - Chapman
  - Baltzell
  - Pickford
  - Crandall
  - Knickerbocker
  - West Lawn
  - Lincoln
  - Harrison
- Additional investigation needed to verify grades



"Green" Infrastructure

- Consider a stormwater treatment structure in Wingra Park
- Catchbasins installed to collect sediment before entering Lake Wingra



Underground Sand Filter

Green Infrastructure

- Further discussions on placemaking and amenities
- Additional green infrastructure installed within Crazy Legs Plaza?
- LED lighting thru corridor
  - Much more energy efficient

Green Infrastructure

- Continue with Envision process
- Criteria to evaluate sustainability of planning, construction & operation
- Guide & tool to score project
  - First City project to use process
- Envision framework has helped guide input process

ENVISION®

Institute for Sustainable Infrastructure

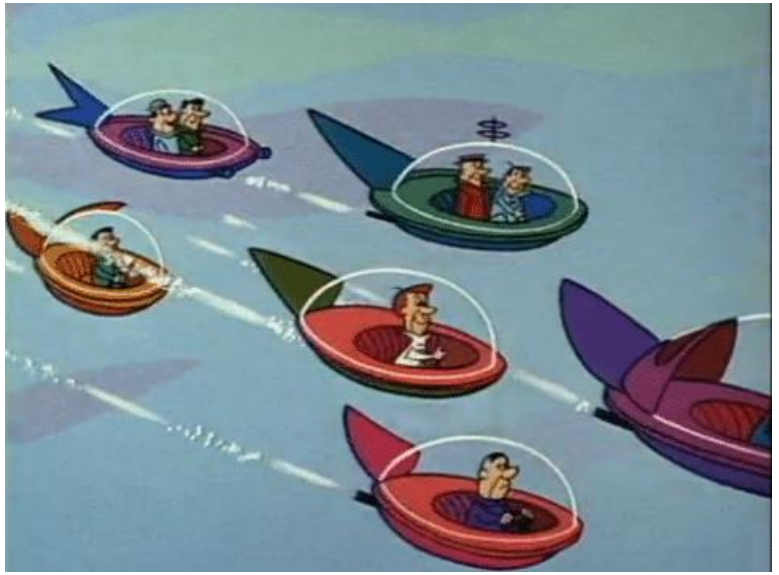
ZOFNASS PROGRAM FOR SUSTAINABLE INFRASTRUCTURE

APWA ASCE ACEC

http://sustainableinfrastructure.org/

Flexibility for the Future

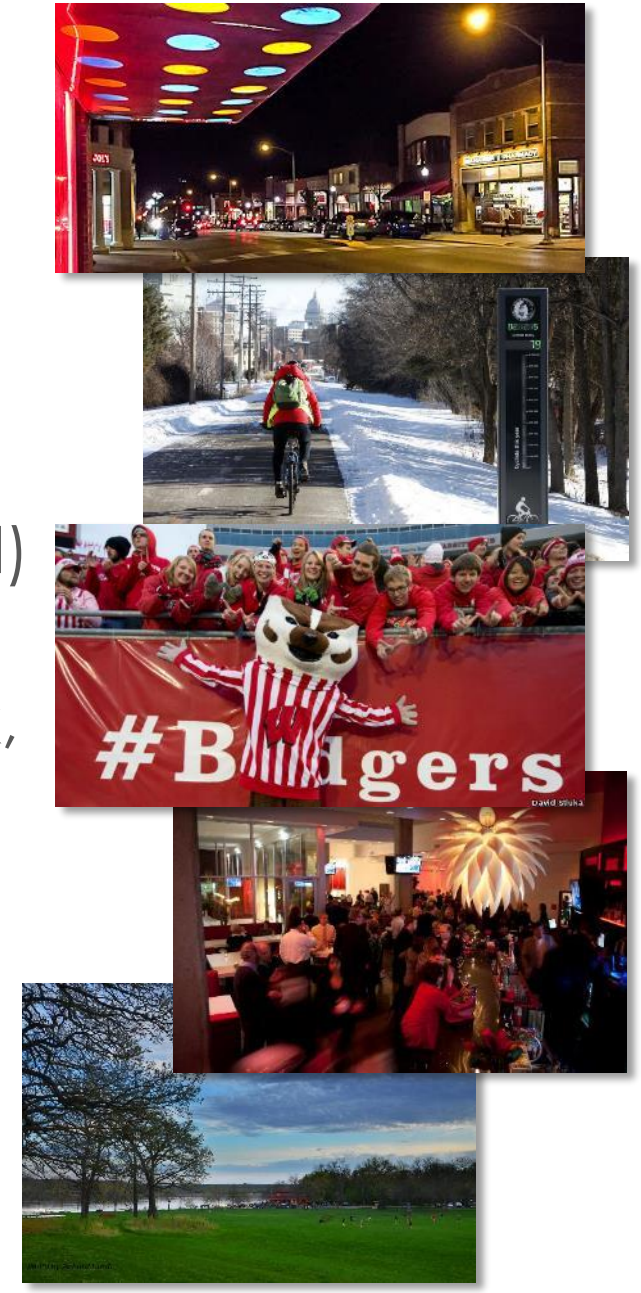
- Unknown future transportation needs
- Vehicle technology changes
- Higher density developments continue to be constructed along Monroe St.



- Population trends toward alternatives to driving
- Section provides flexibility
  - Modifications to parking restrictions, adding bike lanes, etc. can be made by simply changing paint & signs
  - No need for major infrastructure replacement

Already Awesome

- Healthiest local street retail outside of downtown Madison
- Thriving restaurant scene
- High property values
- Anchor institutions (UW, Edgewood)
- Numerous local and regional community amenities (Wingra Park, Arboretum, SW Commuter Path, Glenwood Park, etc.)
- Frequent Metro service
- Easy access to Downtown, east side and west side



Questions and Comments?

Next Steps

Cross Section Resolution

Public Meetings:

- 11/22: Introduce cross section resolution to the Common Council for referral only
- 11/29: Ped/Bike/Motor Vehicle Commission
- 12/14: Board of Public Works (Lead Agency)
- 1/3/2017: Resolution goes to Common Council for final approval

For More Information:

- All survey and meeting materials are posted online at City of Madison Engineering: www.cityofmadison.com/engineering/projects/monroe-street
  - Subscribe to email updates.
  - View survey results, presentations and notes.
- Alder Eskrich, District 13: www.cityofmadison.com/council/district13/
  - Subscribe to email updates.
  - Share additional comments.

Thank You!

Source: http://www.monroestreetmadison.com/