Mount Auburn Street Corridor Study

June 23, 2016
Russell Youth
Community Center

Commonwealth of Massachusetts

Governor
Charles D. Baker

Lieutenant Governor
Karyn E. Polito

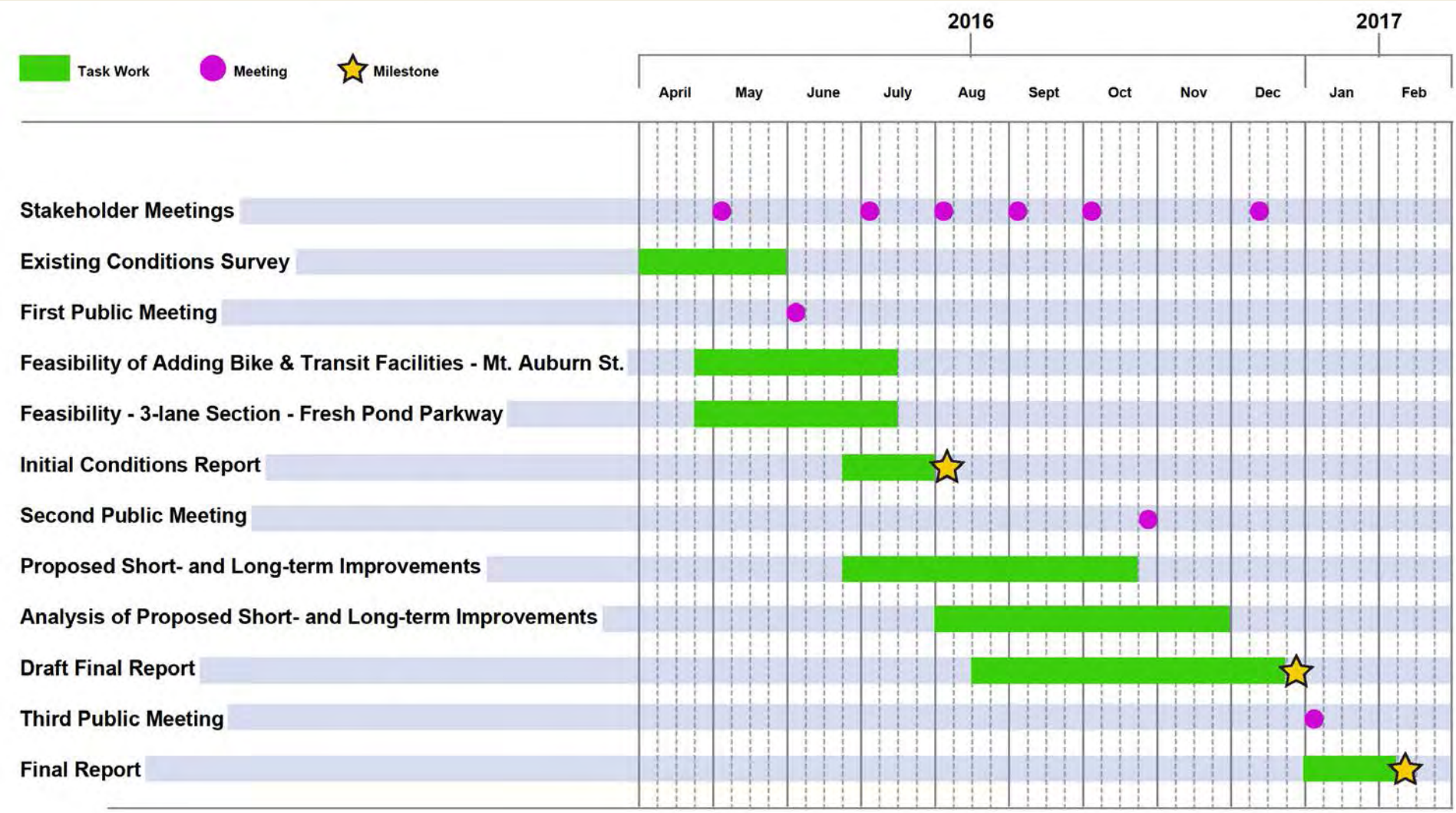
Energy and Environmental Secretary
Matthew A. Beaton

Department of Conservation and Recreation Commissioner
Leo P. Roy

DCR Mission Statement

To protect, promote and enhance our common wealth of natural, cultural and recreational resources for the well-being of all.

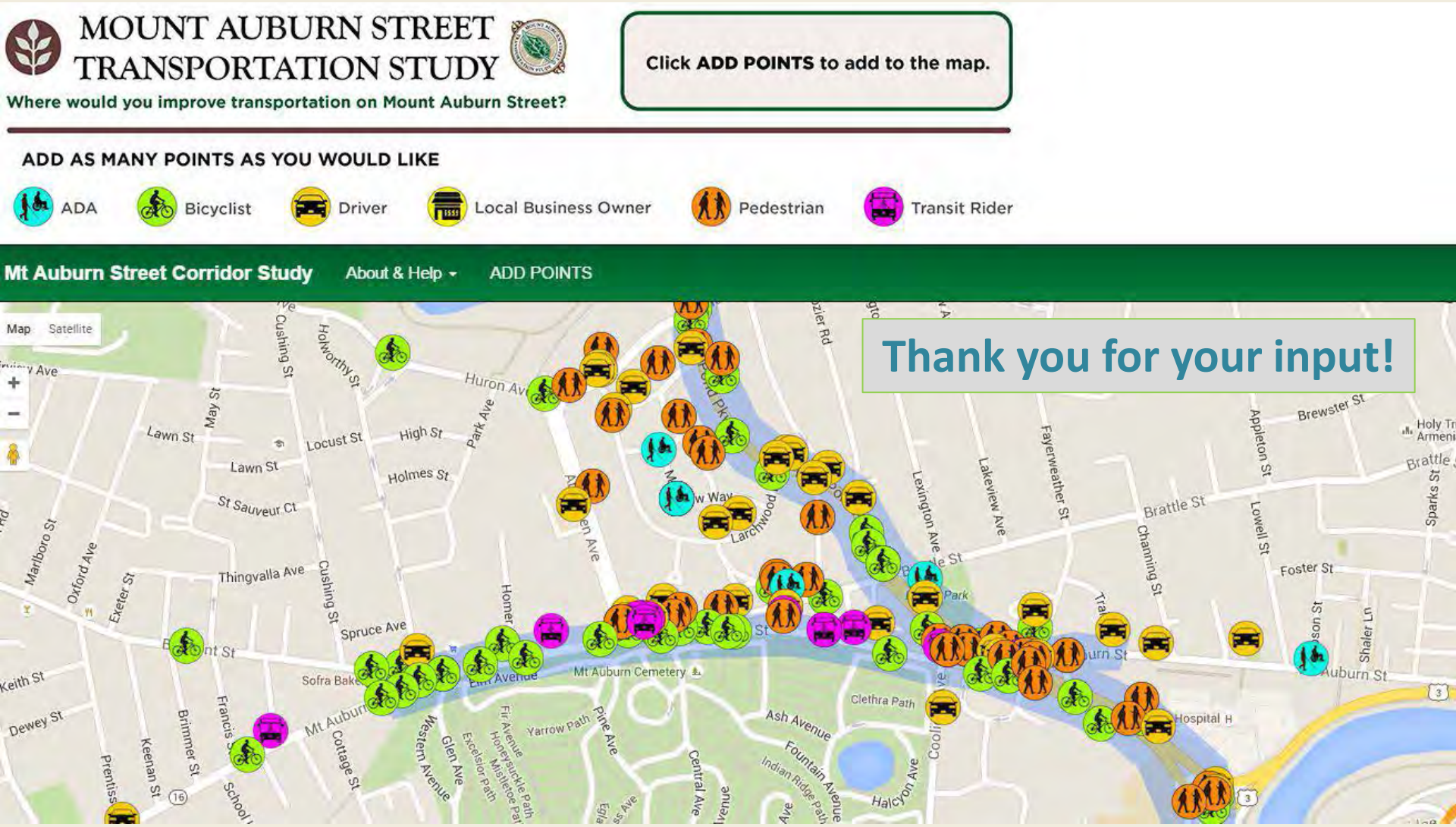
Schedule


2016
2017
Task Work
Meeting
Milestone
April
May
June
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Stakeholder Meetings
Existing Conditions Survey
First Public Meeting
Feasibility of Adding Bike & Transit Facilities - Mt. Auburn St.
Feasibility - 3-lane Section - Fresh Pond Parkway
Initial Conditions Report
Second Public Meeting
Proposed Short- and Long-term Improvements
Analysis of Proposed Short- and Long-term Improvements
Draft Final Report
Third Public Meeting
Final Report

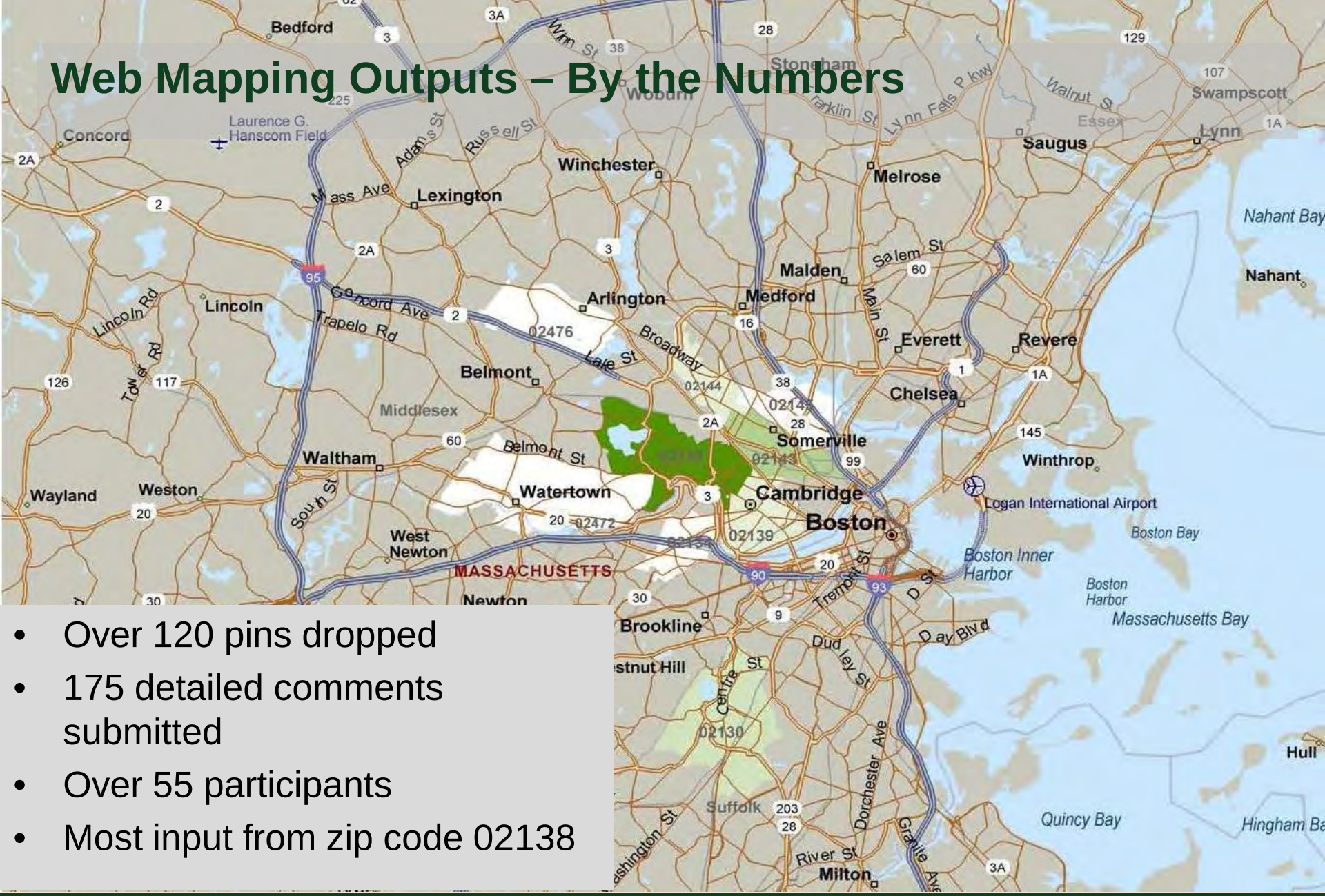
Agenda

- Welcome
- Discussion of Shared Goals
- What Does Transit Priority Look Like?
- What is a Road Diet?
- Next Steps

Web Mapping Tool

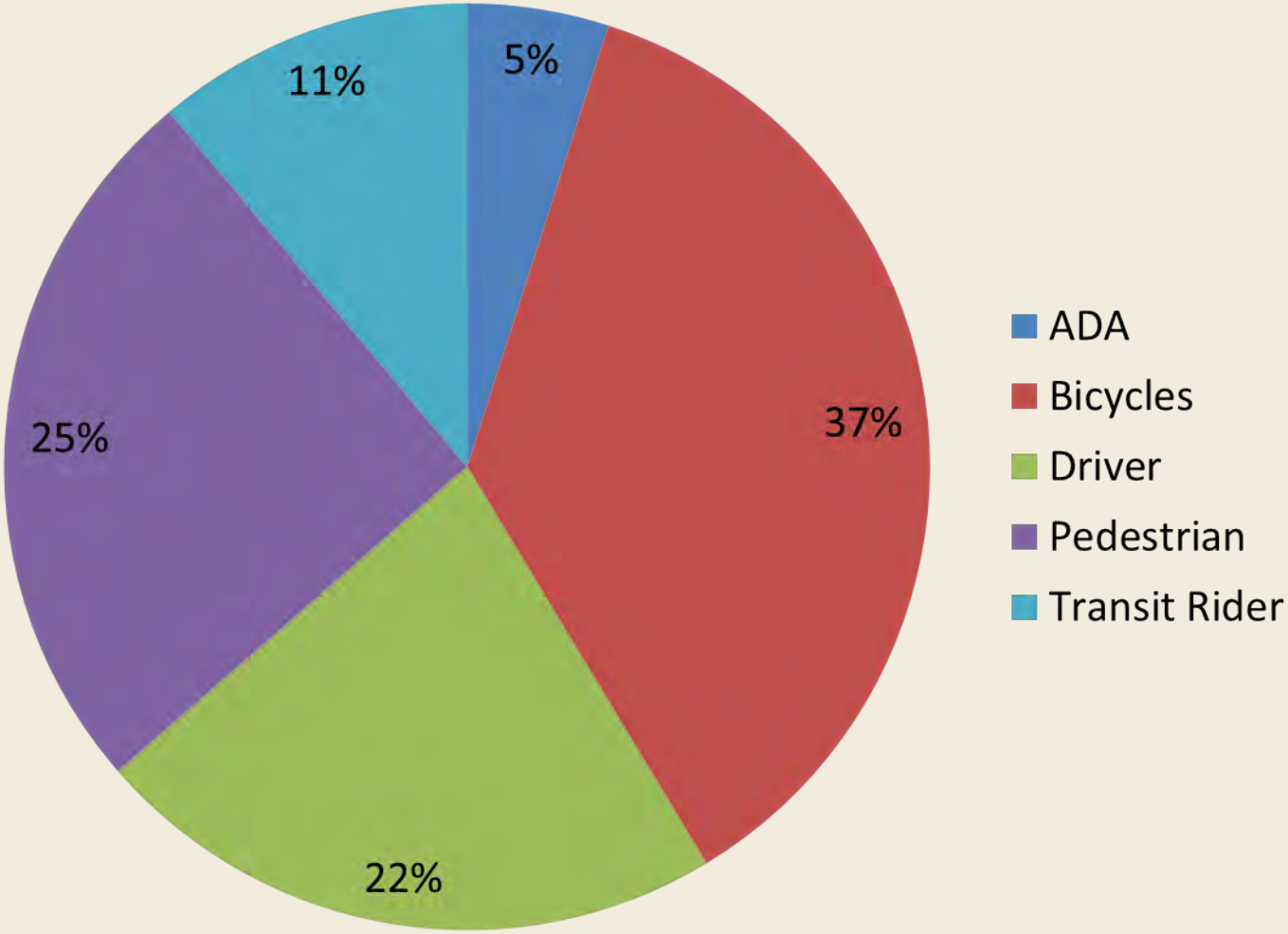


Web Mapping Outputs – By the Numbers



- Over 120 pins dropped
- 175 detailed comments submitted
- Over 55 participants
- Most input from zip code 02138

Web Mapping Outputs – User Input Breakdown

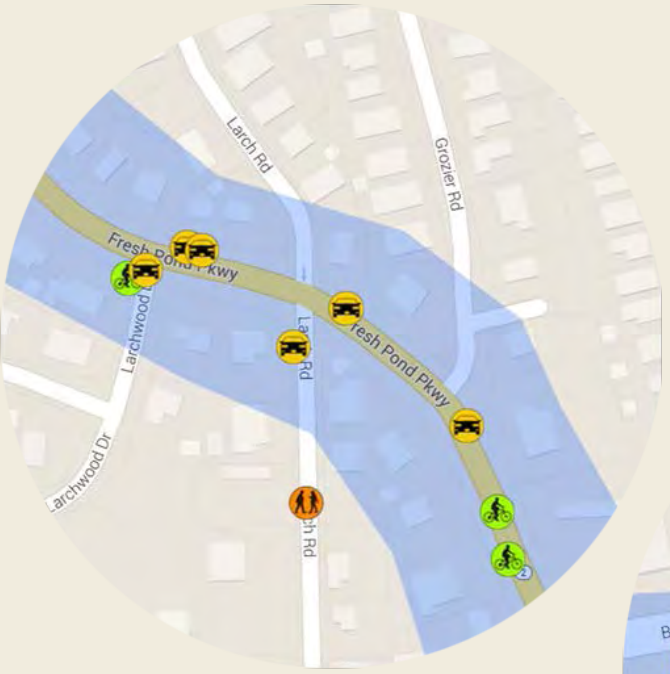


Web Mapping Outputs – Pin Clusters

Fresh Pond Pkwy at Mount Auburn St.

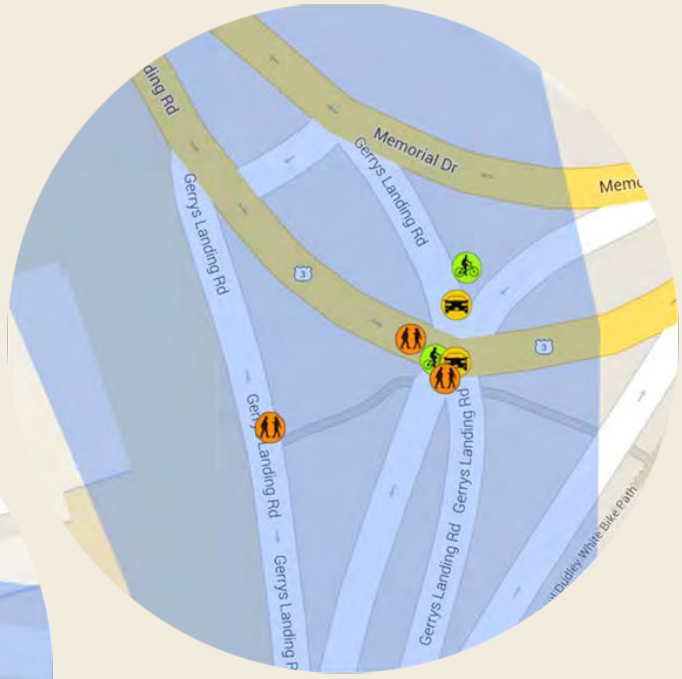
Brattle St. at Mount Auburn St.

Web Mapping Outputs – Pin Clusters



Fresh Pond Pkwy at Larch Rd.

Mount Auburn St. south of Brattle St.



Mount Auburn St. at Gerry's Landing Rd.

Web Mapping Outputs - Comments

"Staying straight on Mount Auburn instead of turning right on a bicycle is constantly a dangerous situation as cars always assume bikes are turning and do not yield - many close calls."

"The timing of the lights can actually be adjusted by pedestrians hitting the walk button, and this can bring the Coolidge Ave. lights and the Fresh Pond Parkway lights in and out of sync. If the Coolidge Ave. lights had a consistent timing regardless of whether the walk button had been hit, that would resolve the syncing issue."

"Why shouldn't it be possible to go left onto Mt. Auburn from Alewife Brook Parkway when heading west-southwest? There could be an arrow signal, if necessary. Depending on the time of day, there are few or no vehicles heading north here, making it feasible to allow this left-turn at certain times of the day."

"Maybe speed bumps in the neighborhood or 15 mph posted signs?"

Web Mapping Outputs – Most “Liked” Comment

“Left turn from Mt Auburn to Brattle is challenging to make (for both bikes and cars).”

“I Agree, I have never biked on Mt Auburn Street east of here due to how stressful it seems. Turning left from Mt. Auburn Street onto Brattle is still pretty bad, although once actually on Brattle it's generally ok.”

7 “Likes” in support of comment

Values vs. Goals

Values are traits or qualities that are considered worthwhile; they represent our highest priorities and deeply held driving forces.

Goals are an expected or desired outcome of a planning process. Goals are usually broad, general expressions of the aspirations of a community.

Original Shared Goals

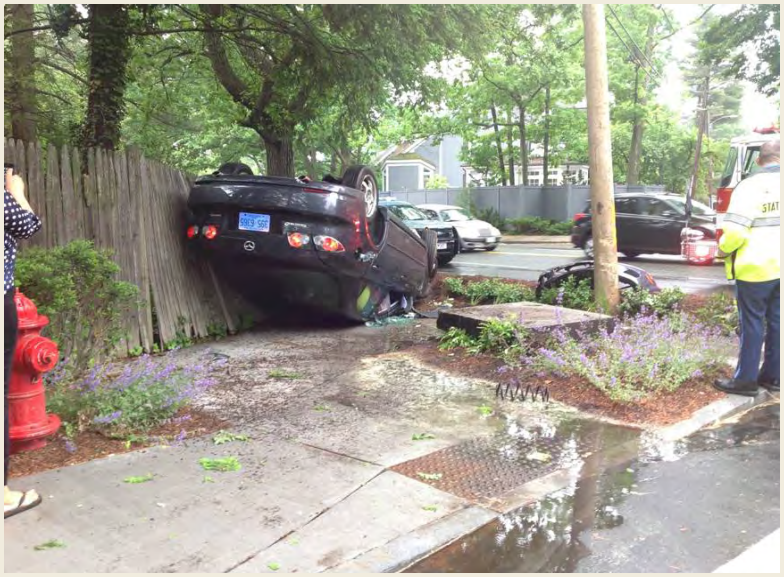
- Offer short-term and long-term solutions.
- Improve safety, attractiveness and comfort for pedestrians.
- Improve safety, access, parking and comfort for bicycles.
- Improve transit speed.
- Reduce cut-through traffic in the Larchwood, Huron Village, and Coolidge Hill Neighborhoods.
- Maintain mobility for motor vehicles.
- Reduce crashes and severity of crashes.
- Acknowledge in our designs the needs of major local institutions such as BB&N, Shady Hill, Mt. Auburn Cemetery and Mt. Auburn Hospital

Improved Shared Goals

1. **Reduce crashes and severity of crashes.**
2. **Measuring people, not cars.**
3. Improve transit ***delays***.
4. Improve safety, attractiveness, **noise**, and comfort for pedestrians **and residents**.
5. Improve safety, access, parking and comfort for bicycles.
6. Reduce cut-through traffic in the Larchwood, **Huron Village**, and Coolidge Hill Neighborhoods.
7. Maintain mobility for motor vehicles.
8. Offer short-term and long-term solutions.
9. **Acknowledge special uses** by BB&N, Shady Hill, Mt. Auburn Cemetery, **Tufts Health Plan**, and Mt. Auburn Hospital.

Reduce crashes and severity of crashes

- Dangerous Maneuvers
  - Left turn into Larchwood from Fresh Pond Parkway
  - Brattle intersection disorganized
- Need for Clarity
  - Green arrow left problem at Aberdeen
  - Lanes at Fresh Pond and Mt. Auburn disorganized
- Calm Traffic, Reduce Speeding
  - Slow down Fresh Pond Parkway
  - Slow down Mt. Auburn Westbound between Fresh Pond Parkway and Brattle Street.



Shared Values

- **Equity**
  - Design for everyone's needs, including the disadvantaged.
- **Flexibility**
  - Designs responsive to:
    - Peak and off-peak
    - School pick up and drop off
    - Funeral processions
    - Emergency vehicle access
- **Balance**
  - Try to balance goals that may conflict.

Shared Goal Suggestions to Discuss

- “Acknowledging/ attending to upstream sources of vehicle traffic in the design - including highlighting (if not encouraging) alternate routes at more distant points.

- “Reduce emissions for the planet and in our neighborhoods.”

Project Area and Scope

Reduce emissions for the planet, or our neighborhood?

- Increase traffic flow (neighborhood, short term).

Or…

- Maintain or decrease traffic flow (planet, long term).

Reduce emissions for the planet, or our neighborhood?

"In summary, the relationship between congestion and vehicle emissions is complex. The amount of emissions from vehicles traveling under congested conditions depends on the distribution of vehicle operating speeds and accelerations, and the relations are nonlinear. For all pollutants, it appears that emission levels are highest at very low speeds, are moderate in the mid-speed ranges, and rise again at high speeds. **These patterns suggest that projects designed to relieve highly congested stop-and-start traffic will reduce emissions, *at least in the short term.*"** *–FHWA SAFETEA-LU Research, Section 3*

Reduce emissions for the planet, or our neighborhood?

"**Induced demand**, or **latent demand**, is the phenomenon that after supply increases, more of a good is consumed."

From *The Atlantic* City Lab

California's DOT Admits That More Roads Mean More Traffic

Take it from Caltrans: If you build highways, drivers will come.

ERIC JAFFE | @e_jaffe | Nov 11, 2015 | 331 Comments

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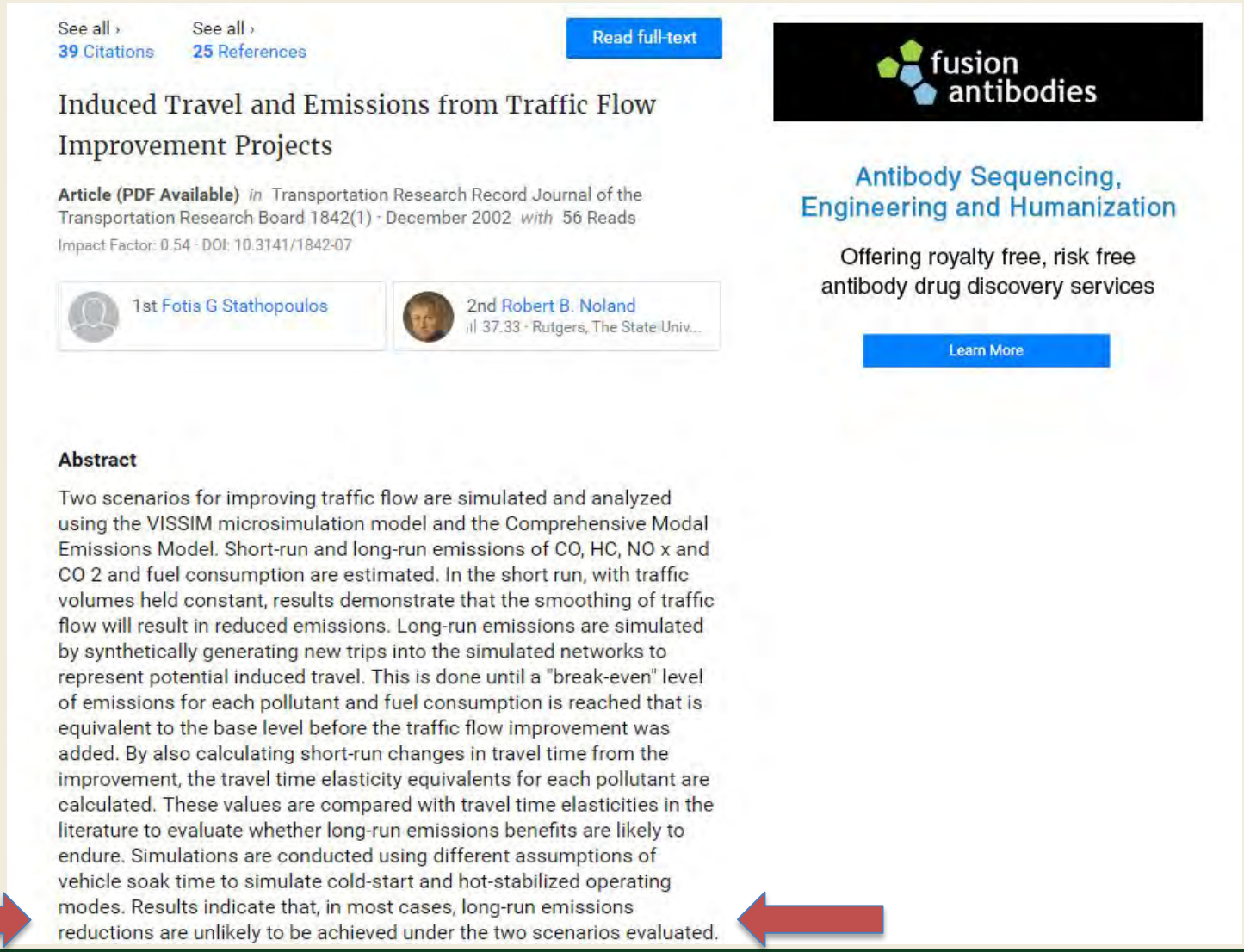
Reduce emissions for the planet, or our neighborhood?

"…any type of empirical measurement, especially if it is intended to determine the long-term impacts of transportation facility changes, would need to be conducted over a substantial period of time. This period may need to last at least 10 years after the change has been fully implemented, which would lead, in many cases, to a total period of 13 to 15 years at least…**The studies of the impacts of transportation improvements on urban form in already built urban areas suggest that the long-term impacts will be hard to distinguish from other factors**."—NCHRP Report 535

From ResearchGate



See all › 39 Citations

See all › 25 References

Read full-text

Induced Travel and Emissions from Traffic Flow Improvement Projects

Article (PDF Available) *in* Transportation Research Record Journal of the Transportation Research Board 1842(1) · December 2002 *with* 56 Reads

Impact Factor: 0.54 · DOI: 10.3141/1842-07

1st Fotis G Stathopoulos

2nd Robert B. Noland
37.33 · Rutgers, The State Univ...

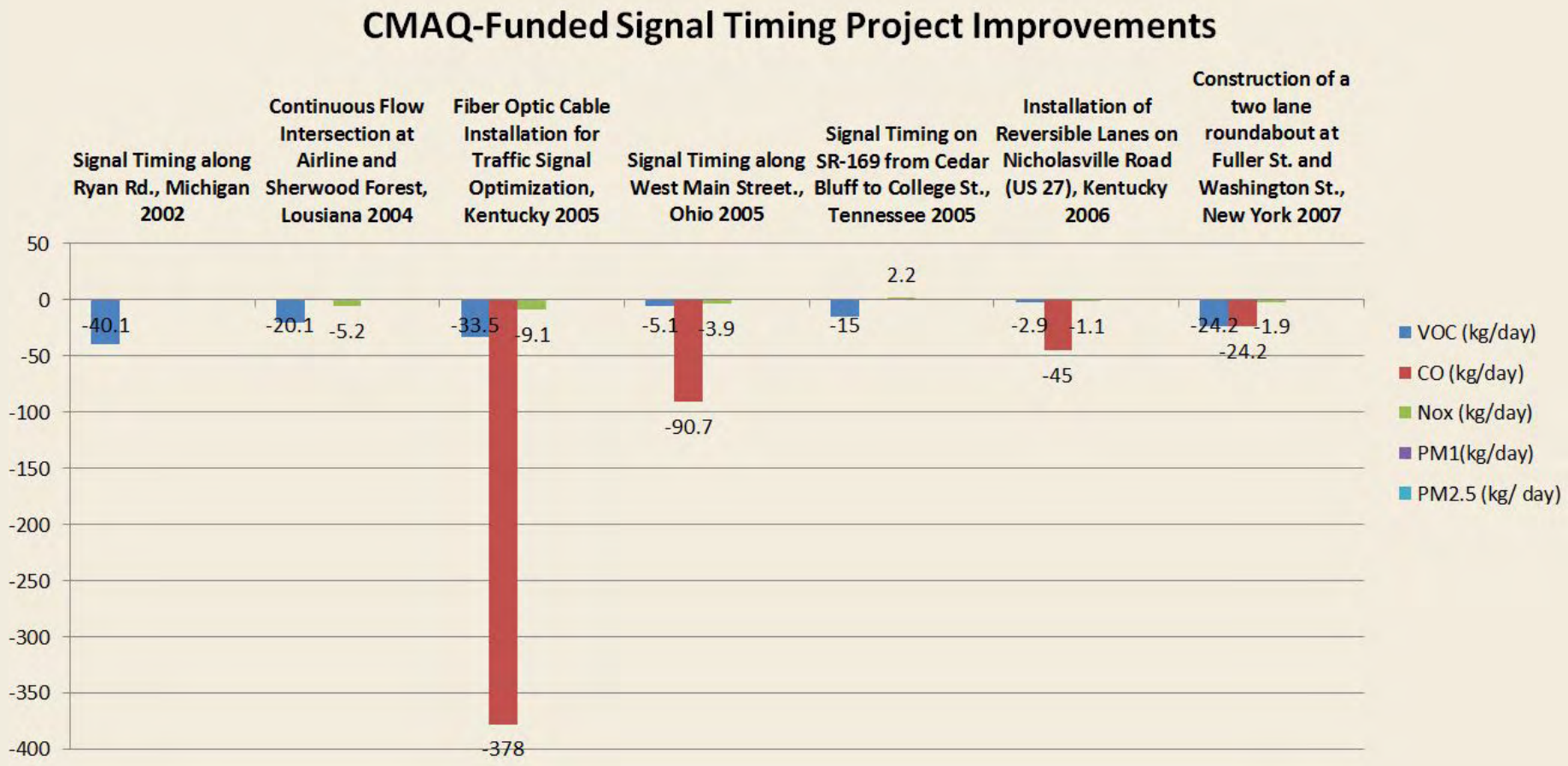
Abstract

Two scenarios for improving traffic flow are simulated and analyzed using the VISSIM microsimulation model and the Comprehensive Modal Emissions Model. Short-run and long-run emissions of CO, HC, NO x and CO 2 and fuel consumption are estimated. In the short run, with traffic volumes held constant, results demonstrate that the smoothing of traffic flow will result in reduced emissions. Long-run emissions are simulated by synthetically generating new trips into the simulated networks to represent potential induced travel. This is done until a "break-even" level of emissions for each pollutant and fuel consumption is reached that is equivalent to the base level before the traffic flow improvement was added. By also calculating short-run changes in travel time from the improvement, the travel time elasticity equivalents for each pollutant are calculated. These values are compared with travel time elasticities in the literature to evaluate whether long-run emissions benefits are likely to endure. Simulations are conducted using different assumptions of vehicle soak time to simulate cold-start and hot-stabilized operating modes. Results indicate that, in most cases, long-run emissions reductions are unlikely to be achieved under the two scenarios evaluated.

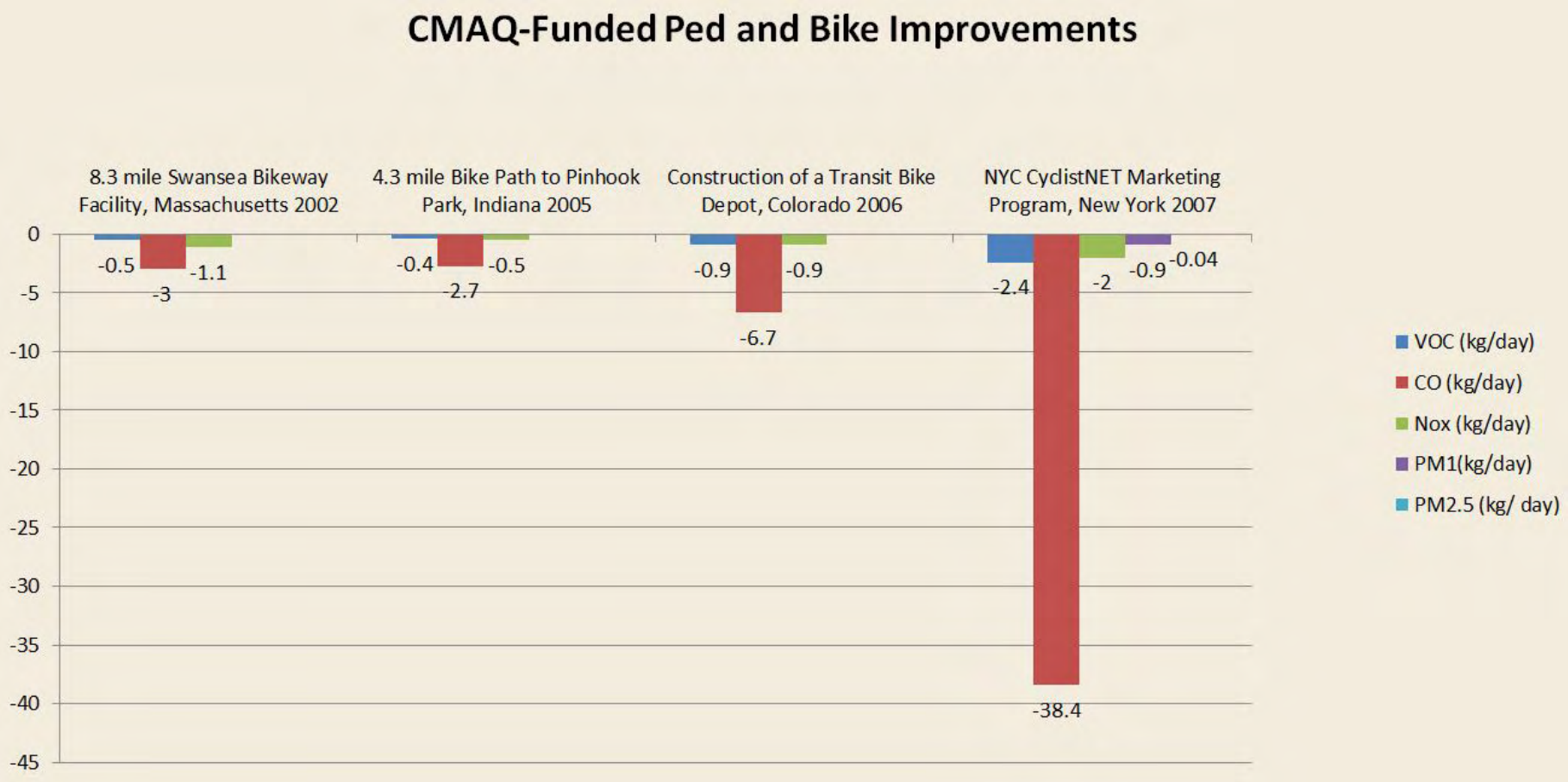
Harmful Emissions from motor vehicles

- **(O3) Ozone (smog ingredient)**
  - Major Health Concern (lungs)
- **(PM1 and PM2.5) Particulate Matter**
  - Smallest is most harmful, cardiovascular
- **(VOC) Volatile Organic Compounds**
  - Chemicals that form Ozone
  - Cancer, reproductive toxicity
- **(NO2) Nitrogen Oxide**
  - A gas harmful to respiratory function
- **(CO) Carbon Monoxide**
  - Poisonous Gas, very harmful at high levels
  - 77% from Transportation
- **(Pb) Lead**
  - Harmful at high levels
  - Lead-Free gas has reduced levels.

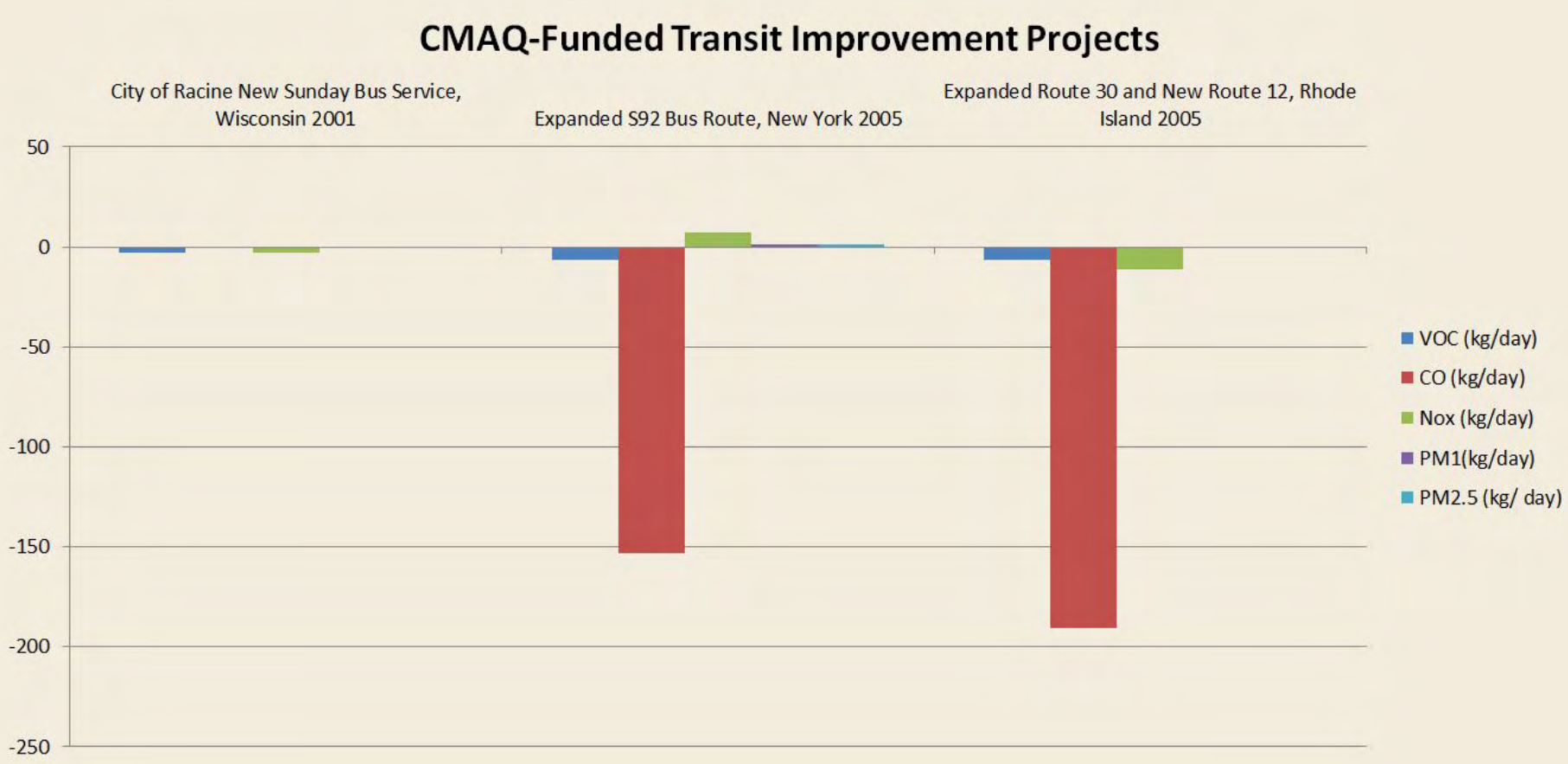
Reduce emissions for the planet, our neighborhood?



Reduce emissions for the planet, our neighborhood?



Reduce emissions for the planet, our neighborhood?



Reduce emissions for the planet, or our neighborhood?

"In the absence of pricing or rationing, the primary incentive for individual motorists to travel is guided by the costs each experiences directly, known as private costs—vehicle operating expenses and the value of that driver's travel time….**if delays become bad enough, some motorists will change their behavior even in the absence of pricing, by either changing the times of their trips or canceling their trips.** However, these shifts are rarely adequate to reduce congestion appreciably without additional incentives (TRB 1994, 28)..*" –FHWA SAFETEA-LU Research, Section 3*

"You're going to come over that river faster, and then you're just going to end up in that same traffic jam approaching the Oak Street Bridge that you're always in," -Richmond Mayor Malcolm Brodie.

"It's a challenge to absorb the kind of car traffic that comes in on these freeways, and that's why the region has been more focused on getting transit built," - Vancouver Mayor Gregor Robertson.

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Massey Tunnel replacement bridge not a solution for traffic congestion, say mayors

Metro Vancouver mayors say new bridge will increase traffic in already congested spots

CBC News Posted: Dec 16, 2015 8:28 PM PT | Last Updated: Dec 16, 2015 8:28 PM PT

This rendering shows what the new bridge across the Fraser River could look like. (B.C. Government)

343 shares

Facebook

Metro Vancouver mayors are questioning the province's plans to build a new 10-lane toll bridge to replace the aging Massey Tunnel.

The province unveiled its plans on Wednesday. The project will result in B.C.'s largest toll bridge, crossing the south arm of the Fraser River,

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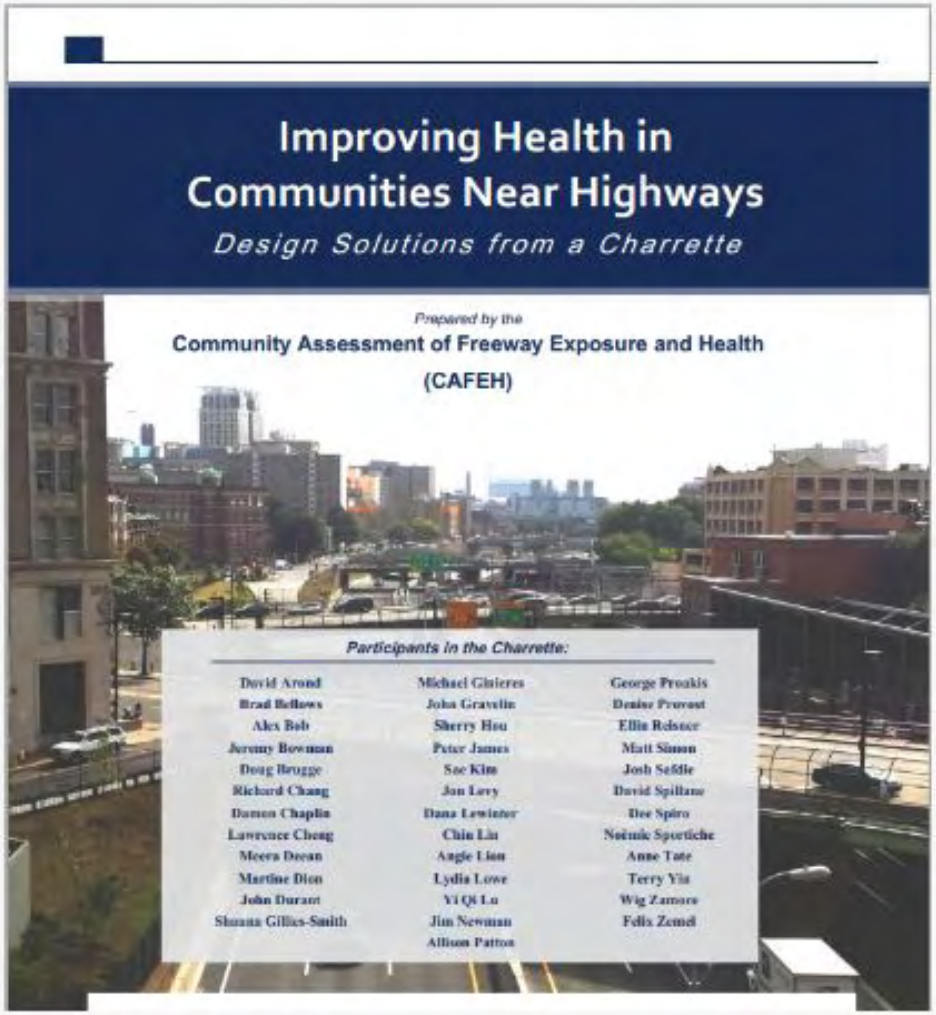


CAFEH is excited to release a new report, "Improving Health in Communities Near Highways: Design Solutions from a Charrette" on March 4, 2015. The report summarizes effective design approaches to reducing near highway residents' exposure

Studies Link Highway, Health Risks. Boston Neighborhood Network Interview with Lydia Lowe and Doug Brugge. Click the image to watch the full video!

WNPR Radio: Air Pollution and Public Health. Click image to listen to the radio. (January 14th, 2013)

Reduce emissions for the planet, or our neighborhood?

- Increase traffic flow/supply (neighborhood, short term).

Or…

- Maintain or decrease traffic flow/supply (planet, long term).

Reduce emissions for the planet, or our neighborhood?

- Reduce idling in the short term.

Or…

- Maintain (or reduce) traffic in the long term and offer other mobility choices.

New and Improved Shared Goals

1. **Reduce crashes and severity of crashes.**
2. **Improve air quality and mobility choices by:**
   a. **Measuring people, not cars.**
   b. **Improving transit delays.**
   c. **Improving safety, access, parking and comfort for bicycles.**
   d. **Maintaining mobility for motor vehicles.**
   e. **Improving safety, attractiveness, noise, and comfort for pedestrians and residents.**
3. Address cut-through traffic in the Larchwood, **Huron Village**, and Coolidge Hill Neighborhoods.
4. Offer short-term and long-term solutions.
5. Acknowledge special uses by BB&N, Shady Hill, Mt. Auburn Cemetery, Tufts Health Plan, and Mt. Auburn Hospital.

And…

Shared Values

- **Equity**
  - Design for everyone's needs, including the disadvantaged.
- **Flexibility**
  - Designs responsive to:
    - Peak and off-peak
    - School pick up and drop off
    - Funeral processions
    - Emergency vehicle access
- **Balance**
  - Try to balance goals that may conflict.

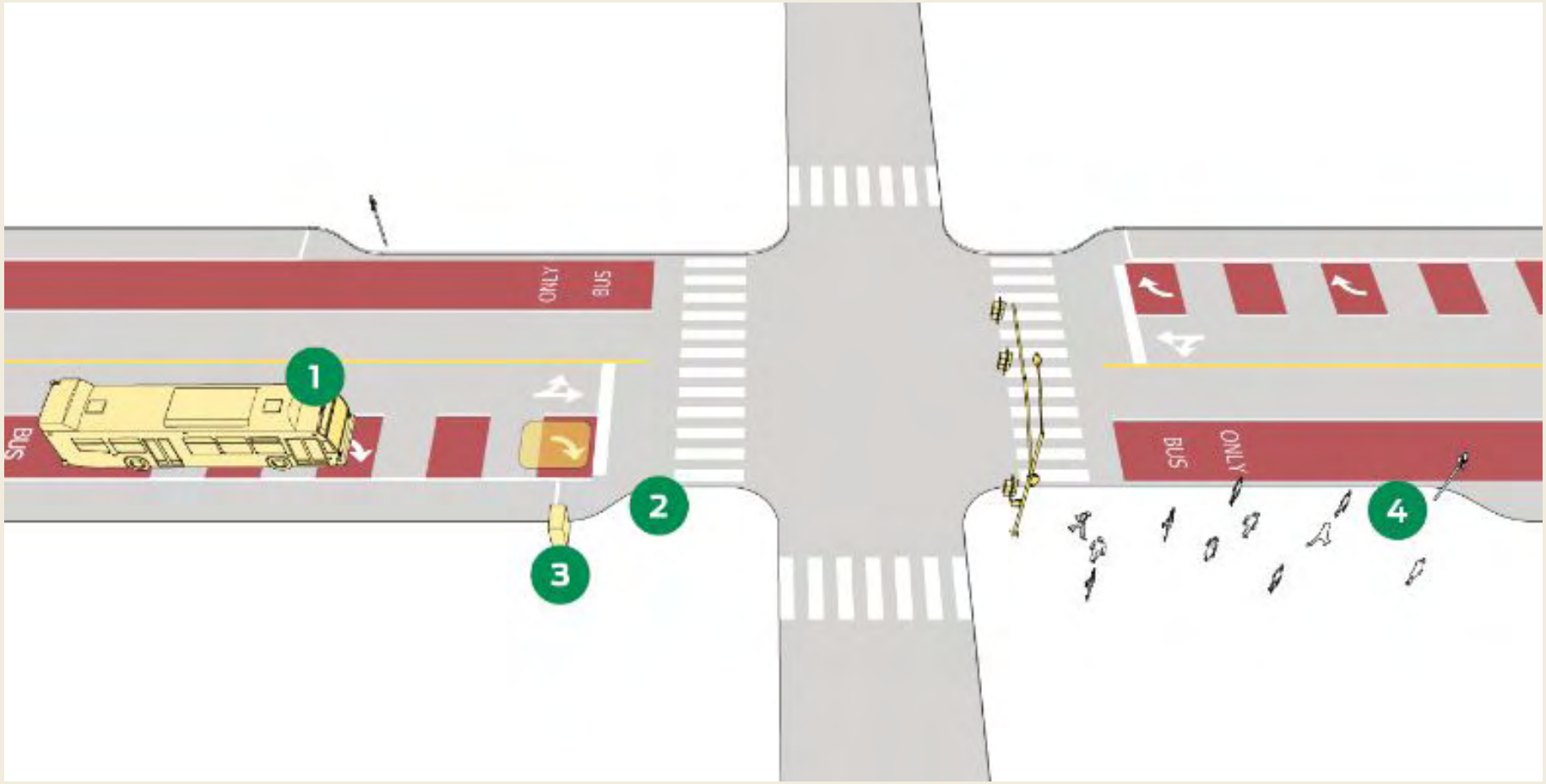
What is Transit Priority?

- Curbside Transit Lanes
  - Buses aren't delayed by parking or loading vehicles if well enforced.
  - Special design attention must be given to right turns.

What is Transit Priority?

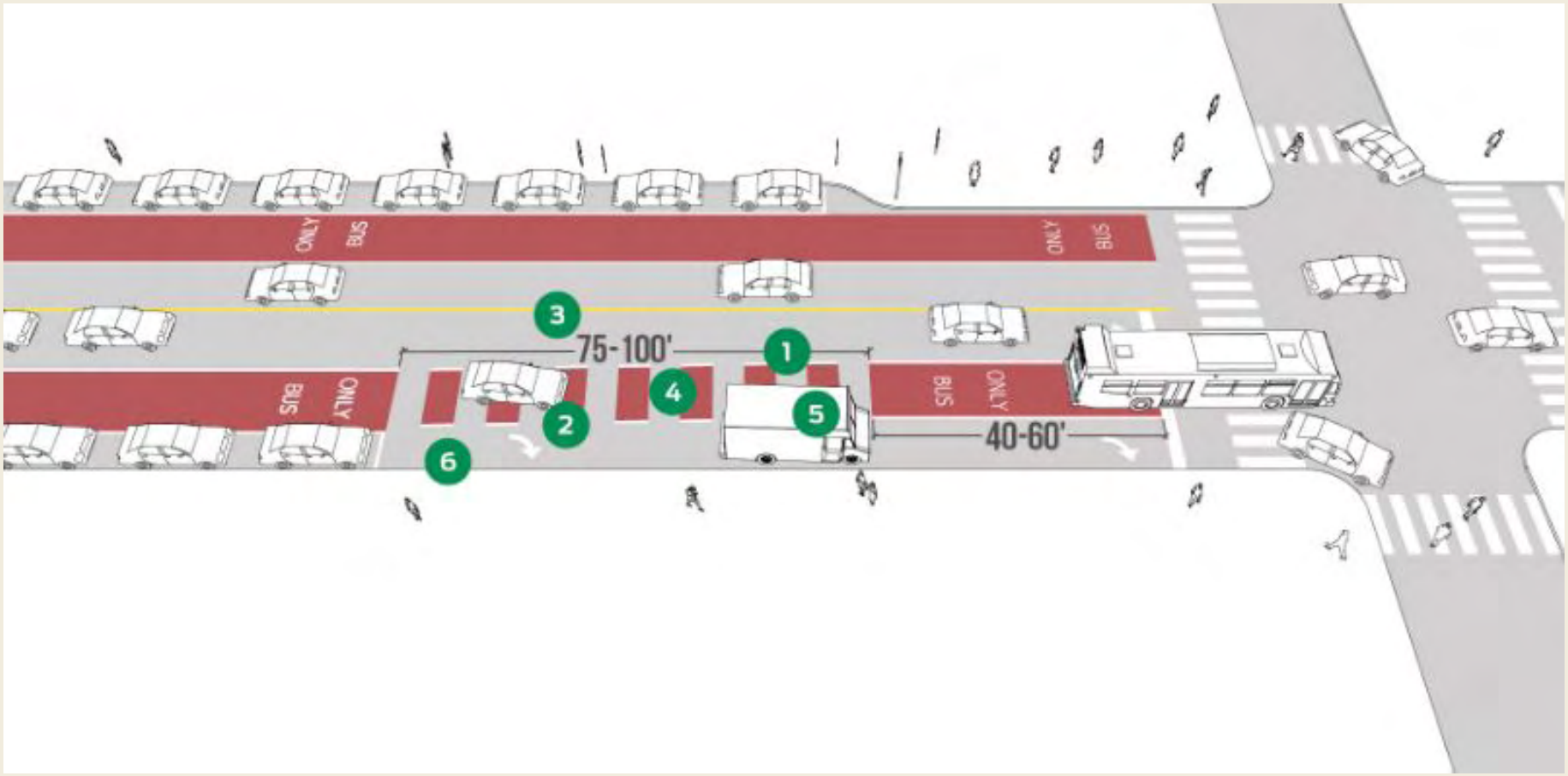
- Shared Bus-Bike Lane
  - Basic bicycle access when no space is available for dedicated bikeways.
  - Increased space and visibility for active street users while improving transit service reliability.
  - Limited to bus lanes with operating speeds of 20 mph or less, and transit headways of 4 minutes or longer.

What is Transit Priority?



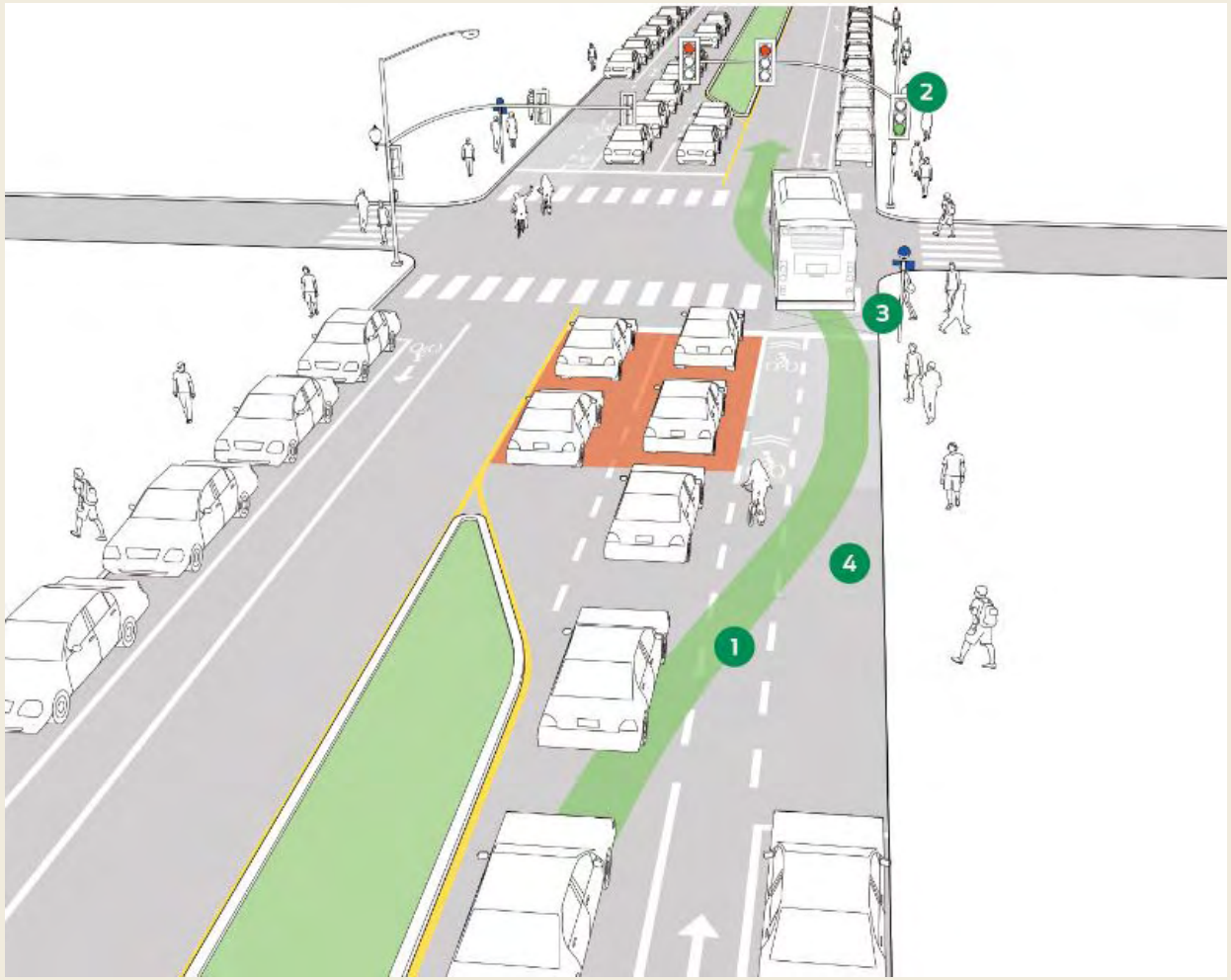
Transit Signal Priority Technology

What is Transit Priority?



Right Turn Pocket Lane

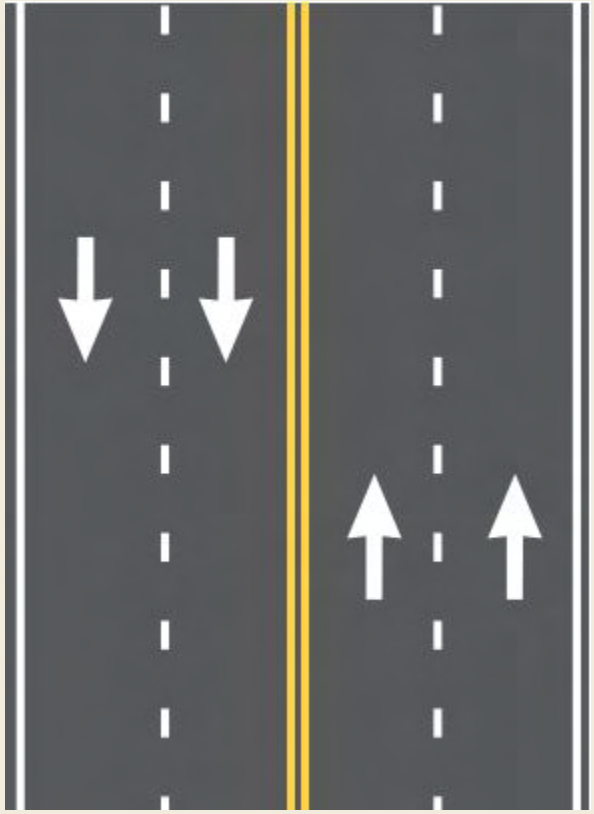
What is Transit Priority?

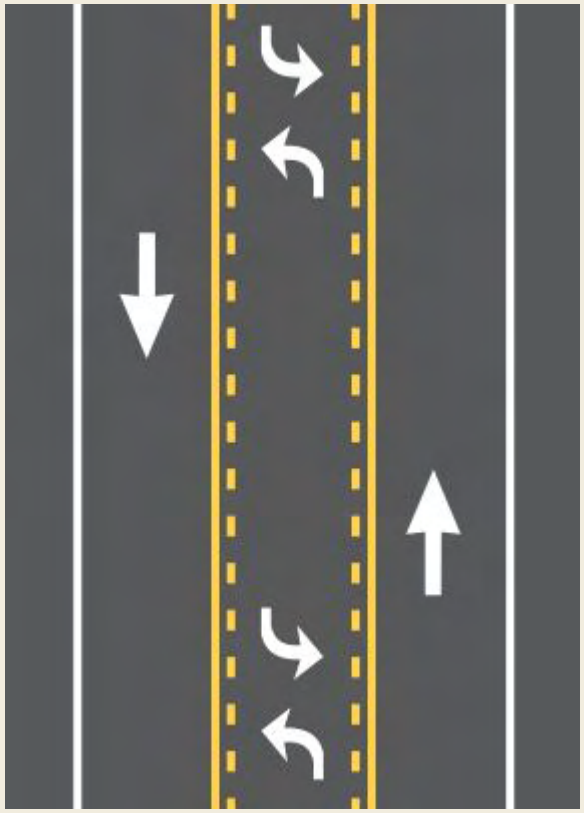


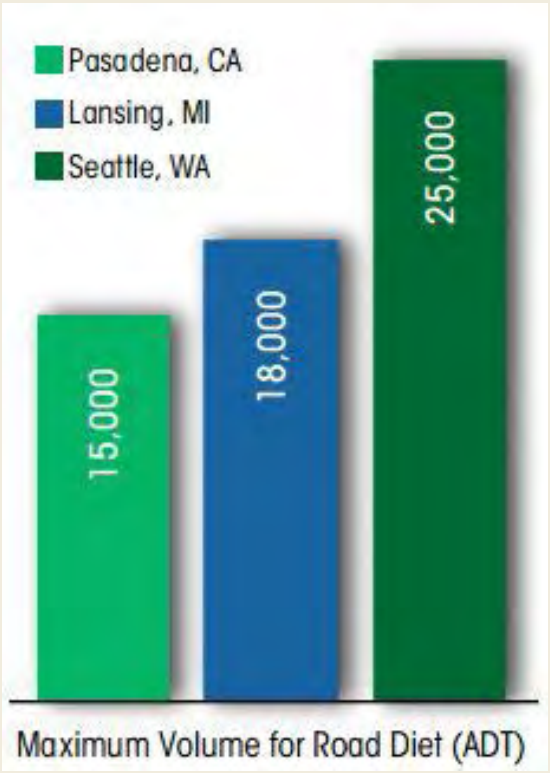
Queue Jump Lanes

What would improve bicycling?

What is a Road Diet?



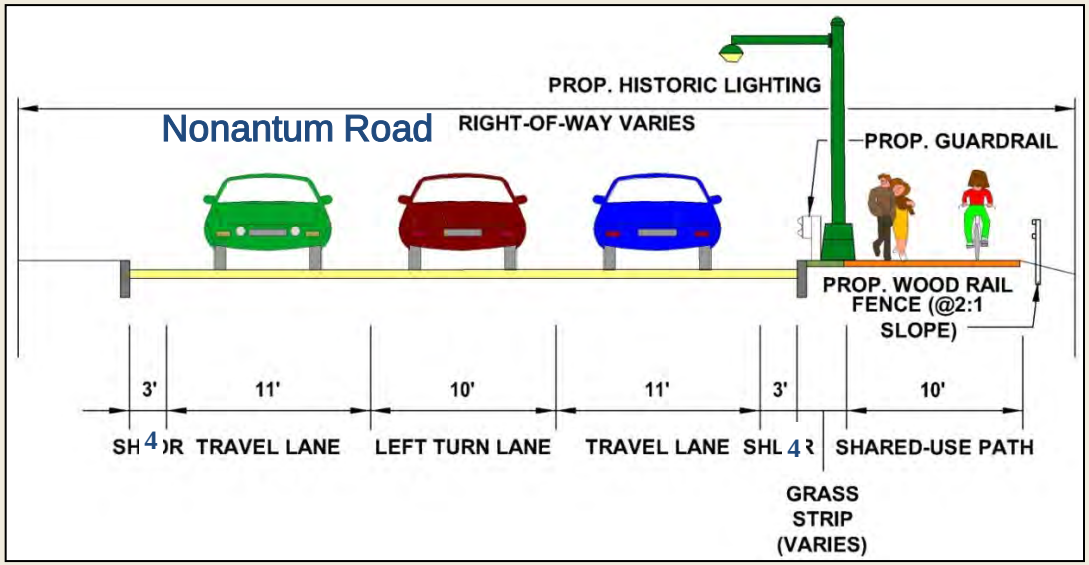




What is a Road Diet?

Road Diet for Nonantum Road

Road Diet for Nonantum Road



Previous Condition

- 40’ +/- Paved Width
- Sidewalk Along Charles River (Width Varies)

Final Condition

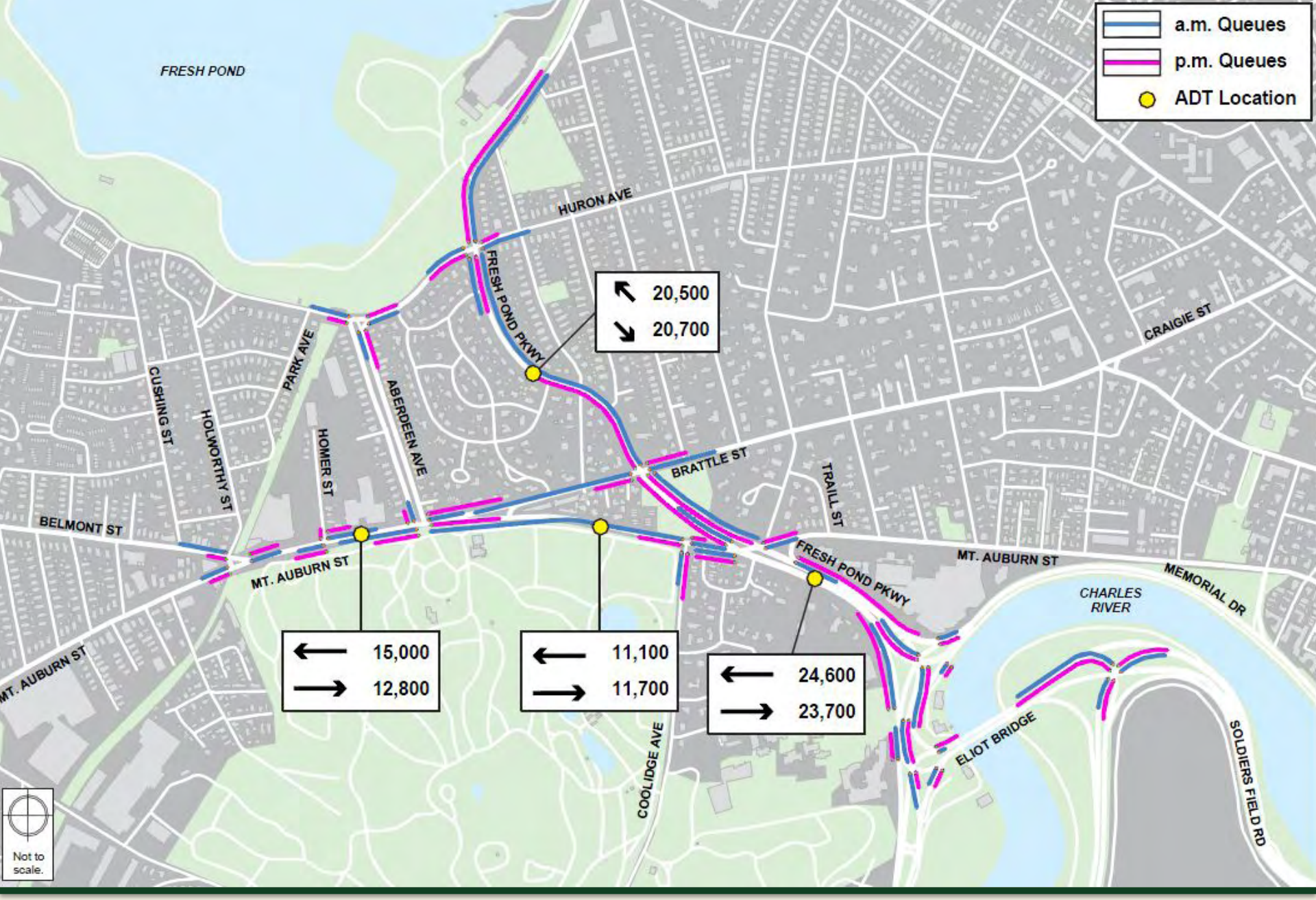
- 40’ +/- Paved Width
- 10’ Shared-Use Path on River side
- 4-5’ Landscaped Area between Roadway and Path

Road Diet for Nonantum Road

Description	Pre-Construction	Post-Construction
Total Segment Length [mi] ([ft])	.70 (3,700)	
Average Daily Traffic (ADT)	27,900	No Data
Turning Movement Counts	Obtained at all Intersections	No Data
Intersection Analysis (LOS)		
Maple Street	B	B
Charlesbank Road	F	E
Brooks Street	C	C
North Beacon Street	C	C
Segment Analysis (LOS)	No Data	No Data
Bicycle and Pedestrian Analysis	No Data	No Data
Speed Study	No Data	No Data
Posted Speed Limits [mph]	40	40
Segment Crash Rate	1.68	0.84

Crash Analysis Summary Table	Pre-Construction	Post-Construction	% Reduction
Total Reported Crashes	24	14	42
Total Injury Crashes	11	4	64
% of Injury Crashes	45.8	28.6	38
Fatal/Incapacitating Injury	1	0	100
Bike/Ped Crashes	1	2	-100
Charlesbank Rd Intersection	14	9	36

42% reduction Total Crashes, 64% reduction Injury Crashes per year


a.m. Queues
p.m. Queues
ADT Location
FRESH POND
HURON AVE
FRESH POND PKWY
20,500
20,700
CRAIGIE ST
CUSHING ST
HOLWORTHY ST
PARK AVE
HOMER ST
ABERDEEN AVE
BRATTLE ST
TRAILL ST
BELMONT ST
MT. AUBURN ST
FRESH POND PKWY
MT. AUBURN ST
MEMORIAL DR
CHARLES RIVER
15,000
12,800
11,100
11,700
24,600
23,700
COOLIDGE AVE
ELIOT BRIDGE
SOLDIERS FIELD RD
Not to scale.

Next Steps

- Next Stakeholder Meeting: July 21
- Initial Conditions Report – August
- Next Public Meeting – October
  - Discussion of proposed long and short term improvements

For More Information:

- **Project Website:** www.mass.gov/dcr/mt-auburn-corridor-study
- **If you have comments or suggestions on this project:**
  - *Submit online at:* http://www.mass.gov/eea/agencies/dcr/public-outreach/submit-public-comments/
  - *Write:* Department of Conservation and Recreation, Office of Public Outreach, 251 Causeway Street, Suite 600, Boston, MA 02114
  - *Deadline (pertaining to this meeting): Thursday, 6/30/16*
    - *Note: Public comments submitted to DCR may be posted on the DCR website in their entirety.*
- Project Wikimap: www.wikimapping.com/wikimap/mtauburn.html
- If you have questions, please email: MaryCatherine.McLean@massmail.state.ma.us