

City of Rochester Bicycle Master Plan



Public Meeting

December 13, 2010



Rochester
Bicycle Master Plan



Project Tasks

1. Establish and Meet with a Project Advisory Committee (**PAC**)
2. Conduct a **Peer City Review** to Identify Best Practices
3. Inventory Relevant **Local Plans**
4. Conduct a **Public Meeting**
5. Evaluate **Existing Conditions and Prioritize Improvements** for City's Arterial and Collector Roadway Network



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Project Tasks

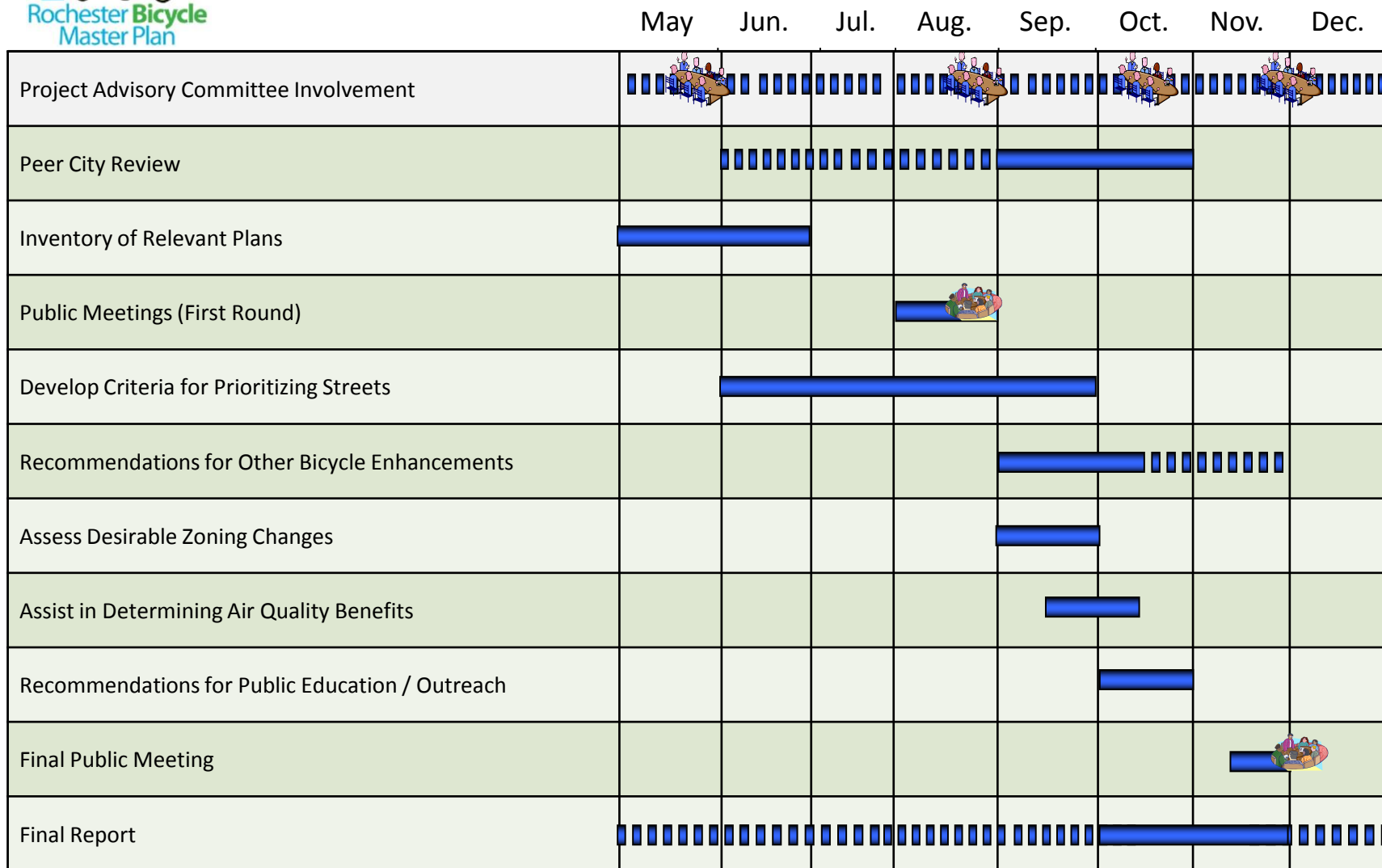
6. Assess the Feasibility of **Other Bicycle Enhancements**
7. Assess Potential **Zoning Code** Changes
8. Assist the City in Determining **Air Quality and Health Benefits**
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Rochester Bicycle Master Plan Project Schedule



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Project Advisory Committee

- City of Rochester
- Monroe County DOT
- New York State DOT
- Genesee Transportation Council (GTC)
- University of Rochester
- Rochester Cycling Alliance
- Citizen Cyclists



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Peer City Review: Peer Cities

- Boulder, CO
- Madison, WI
- Minneapolis, MN
- Montreal, Quebec
- Others as appropriate



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Peer City Review: Topic Areas

1. Bicycle Infrastructure
2. Bicycle Services (parking, end-of-trip, wayfinding)
3. Municipal Code Language
4. Education and Outreach Programs
5. Municipal Staffing Commitment
6. Private Sector Partnerships/Incentives
7. Snow Removal Strategies
8. On-street parking vs. Roadway Retrofits



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Peer City Review: Highlights

- Boulder's Bike Corral Pilot Program
- Montreal's BIXI Bike Share Program
- Madison's Sunday Parkway Rides
- Boulder's Snow Removal Policies



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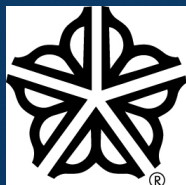


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Inventory of Relevant Local Plans

- Trail Design Studies and Maps
- Neighborhood Infrastructure Improvement Studies
- Other Regional Plans



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Public Workshops (August 2010)

- Station 1: Welcome
 - Project Schedule
 - Workshop Response Form
- Station 2: Benefits of Bicycling
 - Benefits Poster
 - Individual Bicycling Habits
- Station 3: Existing Bicycling Conditions
 - Results Map
 - Tabular Results
 - Establishment of Target Level of Accommodation
- Station 4: Needs Identification
 - Base Map
 - Participant Response Map



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Public Workshops (August 2010)

Benefits of Bicycling



Bicycling helps the local economy...



- Almost 20% of a family's budget is spent on transportation; more pedal power (and less fuel consumption) can mean real savings for families.
- Increased disposable income in turn stimulates the local economy.
- Improving bicycling conditions is a cost effective way of optimizing existing public infrastructure.

Bicycling communities are healthier communities...

- Adding bicycling to your daily routine helps you stay healthier. 60% of Americans are overweight or obese. Bicycling is a great solution to the problem.
- 30 minutes of moderate exercise (like bicycling), 5 days a week can reduce risks for illnesses such as high blood pressure, heart disease, arthritis and depression.
- Bicycle trips create zero emissions, contributing to better air quality for the region (and cleaner air for you to breathe!).



Bicycling communities are strong communities...

- Cities that promote bicycling retain youth, attract young families and increase social capital.
- Improved bicycling conditions add to the vitality and quality of life of the community and provide access to recreational destinations across the region.
- Improved bicycling conditions provide mobility for people who do not have cars, increasing access to jobs, education, and healthcare.
- Better bicycling conditions provide access to public transit, increasing transportation options.



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Rochester Bicycle Master Plan:
Facility Needs Identification



**Rochester Bicycle Master Plan
Public Workshop Meetings
August 2010
Public Response Form**

Station 3: Existing Bicycle Conditions

Bicycling Conditions

Please help us understand your needs and expectations for bicycling conditions. Please bear in mind that better conditions come at a cost and take time to implement. Consider the following general constraints when making your selections:

Level of Service	Cost	Timeframe to Implement
A	High	Long
B	Mod. High	Mod. Long
C	Moderate	Moderate
D	Mod. Low	Mod. Short
E/F	Low	Short

General Bicycling Conditions	Level of Service (circle one)					
Please indicate which bicycling conditions represent a minimum standard that still meets your <u>general</u> needs.	A	B	C	D	E	F

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Existing Conditions Analysis

- BMP Study Network: Nearly 300 Directional Miles (Collectors & Arterials)
- Over 8,000 data items collected
- Bicycle Level of Service Analysis (national standard)
 - Width of Outside Lane
 - Width of Paved Shoulder, Bike Lane, or Striped Parking
 - Percentage of Occupied On-Street Parking
 - Traffic Volume
 - Traffic Speed
 - Percent Heavy Vehicles
 - Pavement Surface Condition



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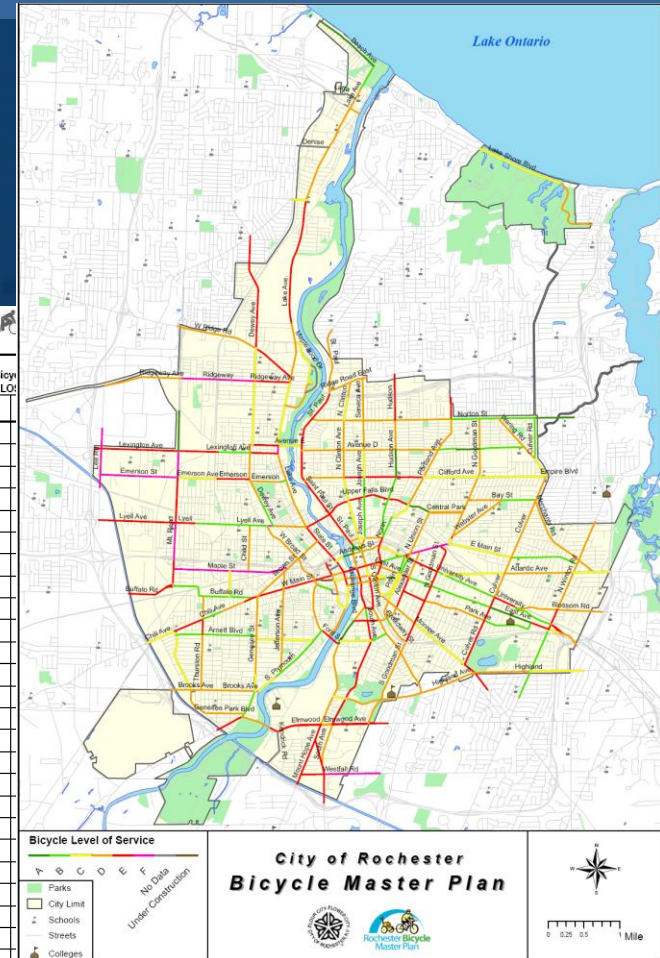


Existing Conditions Results

Distance-Weighted Network Average:
3.7 ("D")

City of Rochester Bicycle Master Plan DRAFT Existing Bicycling Conditions (Bicycle Level of Service)

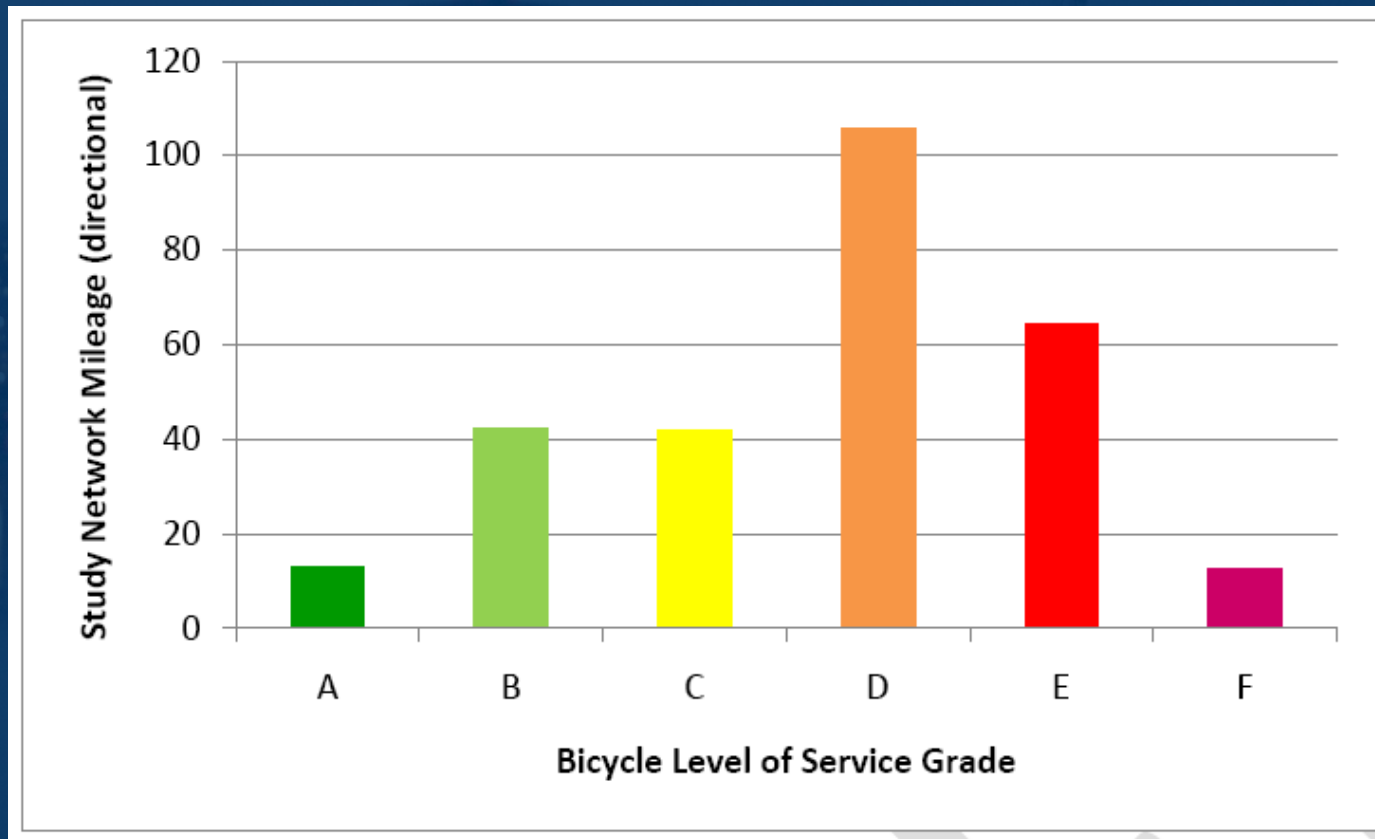
Seg_ID	Road Name	From	To	Length (Ls) (mi)	Dir. of Sur.	Lanes (LI) Th Con	ADT	Ths. (HV) (%)	Post. Spd. (SP) (mph)	Width of Pavement W ₁ W ₂ W ₃ (ft)	Occ. Park. (OSPA) (%)	Pavecon PC ₁ PC ₂ (1-5)	Bicyc Score (1-7)
7.0	Alexander Street	Mt. Hope Avenue	South Avenue	0.19	NB	2 U	5,462	4	30	14.0 0.0 0	40	3.0 -	4.52
7.0	Alexander Street	Mt. Hope Avenue	South Avenue	0.19	SB	2 U	5,462	4	30	14.0 0.0 0	40	3.0 -	4.52
8.0	Alexander Street	South Avenue	Clinton Avenue	0.17	NB	2 U	8,520	4	30	14.0 0.0 0	60	3.0 -	4.95
8.0	Alexander Street	South Avenue	Clinton Avenue	0.17	SB	2 U	8,520	4	30	14.0 0.0 0	60	3.0 -	4.95
9.0	Alexander Street	Clinton Avenue	Broadway	0.11	NB	2 U	11,534	4	30	18.0 0.0 0	0	3.0 -	3.81
9.0	Alexander Street	Clinton Avenue	Broadway	0.11	SB	2 U	11,534	4	30	18.0 0.0 0	0	3.0 -	3.81
10.0	Alexander Street	Broadway	Monroe Avenue	0.20	NB	4 U	10,815	4	30	12.0 0.0 0	0	3.0 -	4.26
10.0	Alexander Street	Broadway	Monroe Avenue	0.20	SB	4 U	10,815	4	30	12.0 0.0 0	0	3.0 -	4.26
11.0	Alexander Street	Monroe Avenue	East Avenue	0.48	NB	2 U	13,180	4	30	20.0 0.0 0	60	3.0 -	4.51
11.0	Alexander Street	Monroe Avenue	East Avenue	0.48	SB	2 U	13,180	4	30	20.0 0.0 0	60	3.0 -	4.51
12.0	Alexander Street	East Avenue	University Avenue	0.24	SB	2 U	8,869	4	30	19.0 0.0 0	60	4.0 -	4.12
12.0	Alexander Street	East Avenue	University Avenue	0.24	NB	2 U	8,869	4	30	11.0 0.0 0	0	4.0 -	4.36
13.0	Alexander Street	University Avenue	Main Street	0.16	NB	2 U	6,269	4	30	13.0 0.0 0	0	3.0 -	4.27
13.0	Alexander Street	University Avenue	Main Street	0.16	SB	2 U	6,269	4	30	17.0 0.0 0	50	3.0 -	4.40
457.0	Ames St.	Maple St.	West Ave	0.36	NB	2 U	5,444	3	30	20.0 0.0 0	5	3.0 -	2.94
457.0	Ames St.	Maple St.	West Ave	0.36	SB	2 U	5,444	3	30	20.0 0.0 0	5	3.0 -	2.94
123.0	Andrews St	Chestnut St	N. Clinton	0.26	EB	4 U	7,935	3	30	11.0 0.0 0	10	3.5 -	3.85
123.0	Andrews St	Chestnut St	N. Clinton	0.26	WB	4 U	7,935	3	30	11.0 0.0 0	10	3.5 -	3.85
124.0	Andrews St	N. Clinton	St. Paul	0.13	EB	4 U	6,375	3	30	11.0 0.0 0	20	3.5 -	3.56
124.0	Andrews St	N. Clinton	St. Paul	0.13	WB	4 U	6,375	3	30	11.0 0.0 0	20	3.5 -	3.56
125.0	Andrews St	St. Paul Street	Front St.	0.16	EB	2 U	6,704	3	30	22.0 8.0 0	10	5.0 5.0	0.53
125.0	Andrews St	St. Paul Street	Front St.	0.16	WB	2 U	6,704	3	30	22.0 8.0 0	10	5.0 5.0	0.53
126.0	Andrews St	Front St.	State St.	0.11	EB	4 U	6,014	3	30	11.0 0.0 0	0	5.0 -	2.89
126.0	Andrews St	Front St.	State St.	0.11	WB	4 U	6,014	3	30	11.0 0.0 0	0	5.0 -	2.89
462.0	Arnett Blvd	Genesee Park Blvd	Genesee St	1.13	EB	2 U	6,134	3	30	20.0 8.0 0	30	3.0 3.0	2.27
462.0	Arnett Blvd	Genesee Park Blvd	Genesee St	1.13	WB	2 U	6,134	3	30	20.0 8.0 0	30	3.0 3.0	2.27
215.0	Atlantic	University	Culver Rd	0.85	EB	2 U	6,121	3	30	14.0 0.0 0	0	5.0 -	3.34



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Existing Conditions Results



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Network Recommendations

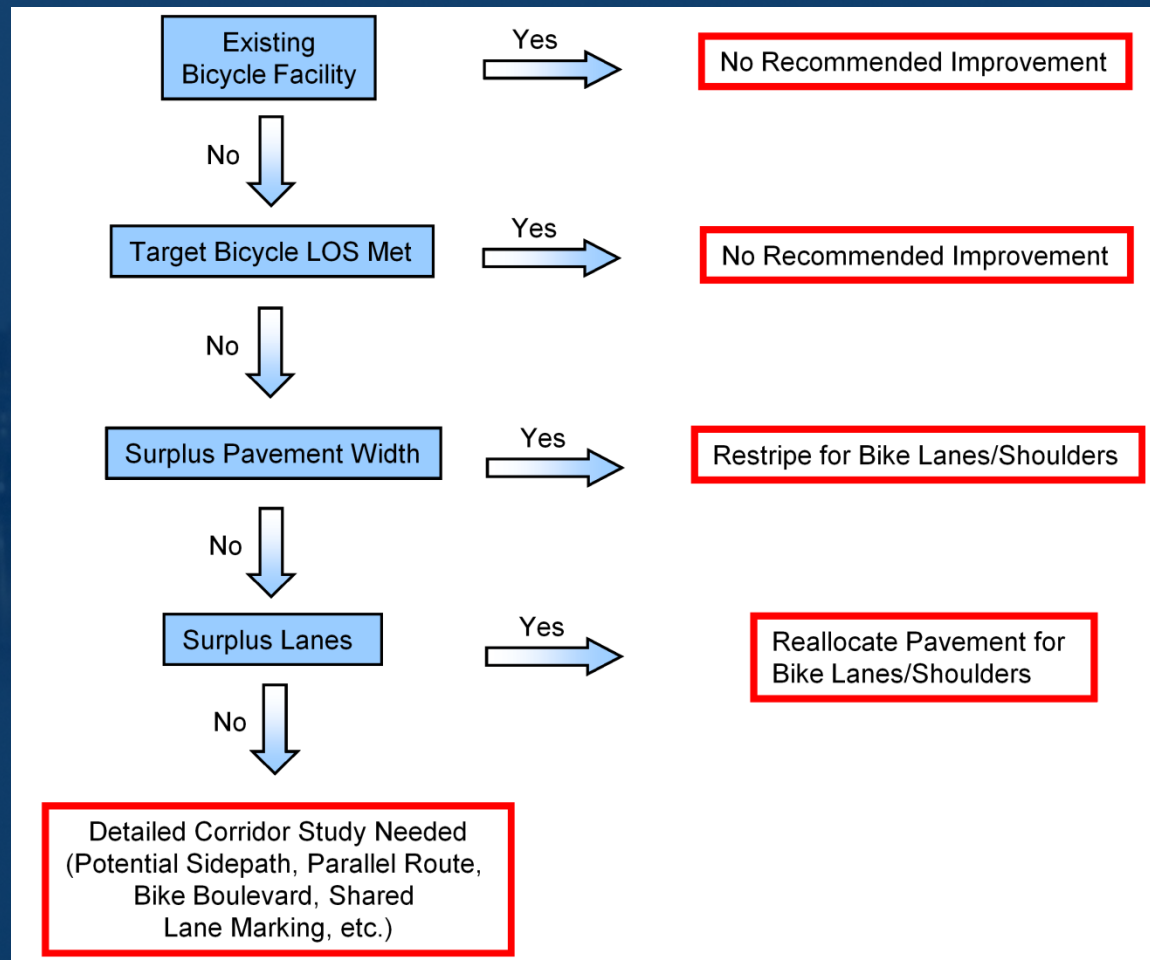
- Existing/Programmed Facilities
- Bicycle LOS Target Met
- Roadway Restripe Candidates
- Road Diet Candidates
- Detailed Corridor Study Needed



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Recommendations Decision Tree



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Results

- Existing/Programmed Facilities: **7 miles (5%)**
- Bicycle LOS Target Met: **42 miles (30%)**
- Roadway Restripe Candidates: **64 miles (45%)**
- Road Diet Candidates: 7 segments
(all restripe candidates as well)
- Detailed Corridor Studies Needed: **29 miles (20%)**



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Restripe/Parking Considerations

Of the 64 miles of potential roadway restripes:

1. No observed parking / geometry suggests *none* occurs (19 miles)
2. No observed parking / geometry suggests some *may* occur (2 miles)
3. Space to preserve parking on at least one side / Observed $\leq 50\%$ (19 miles)
4. Space to preserve parking on at least one side / Observed $> 50\%$ (4 miles)
5. Observed $> 0\%$ / no space to preserve any parking (20 miles)



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Prioritization Criteria

- Existing Bicycling Conditions (Bicycle LOS)
- Public Input
- High-demand Destinations
- Transportation Equity
- Historical Crash Data



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High-Demand Destinations

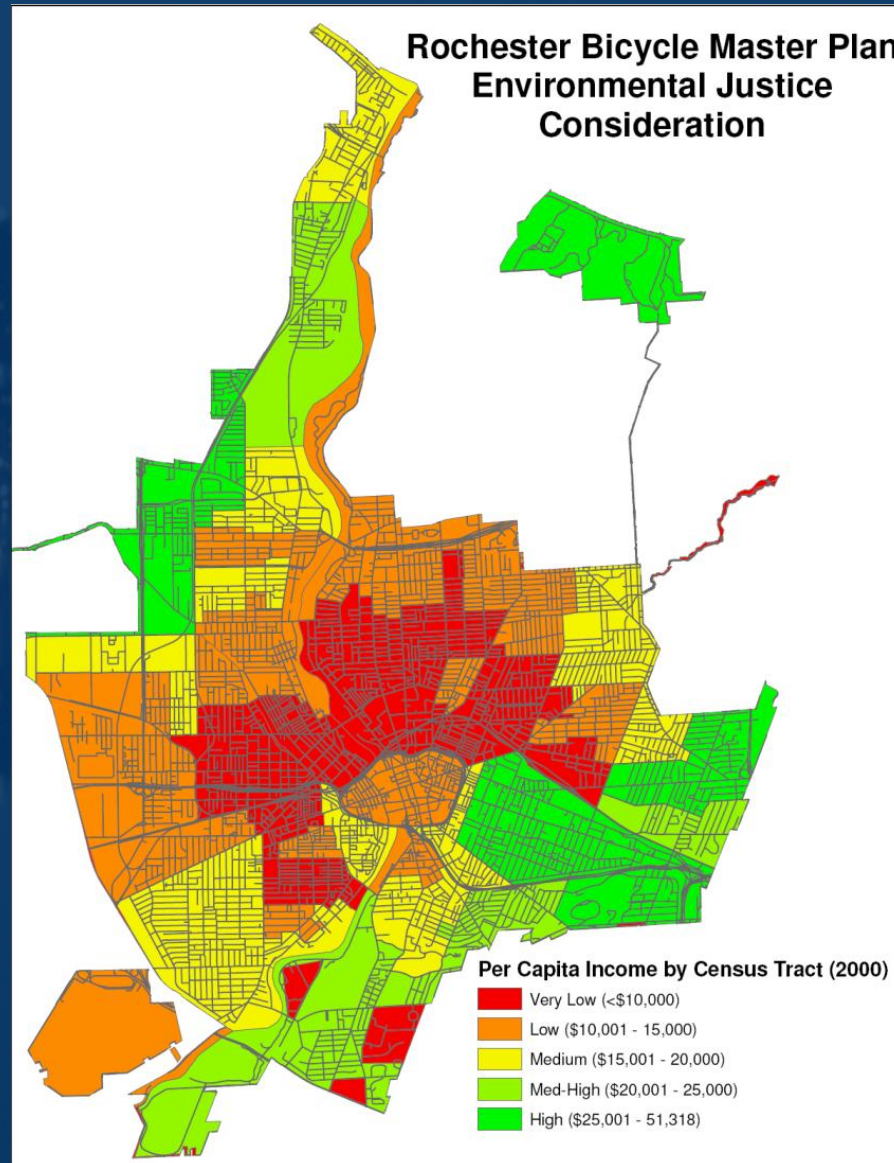
- University of Rochester/Medical Center
- Rochester Public Market
- Downtown Rochester
- Middle and High Schools
- Major Grocery Stores



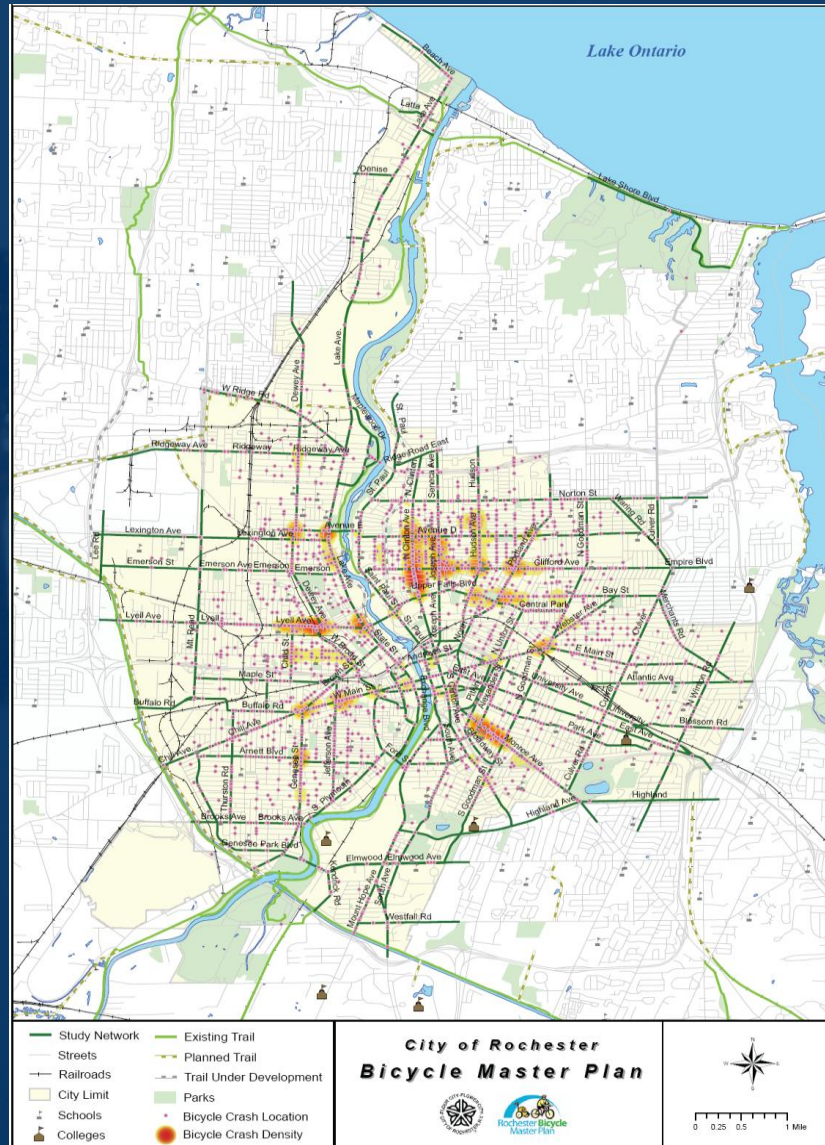
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Transportation Equity



Historical Crash Data

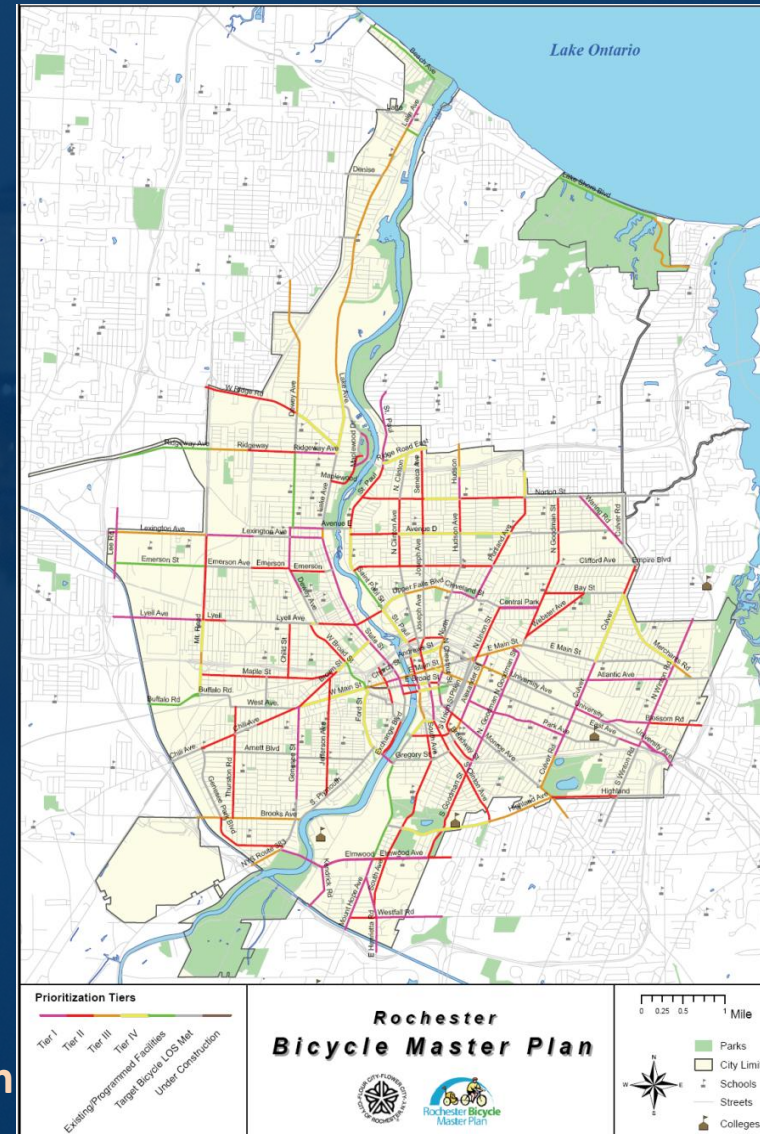


Prioritization Weighting Factors

- 25% Existing Conditions
- 15% Public Input
- 30% Demand
- 25% Transportation Equity
- 5% Historical Crash Data



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Additional Facilities and Treatments

- Shared Lane Markings (“sharrows”)
- Bike Boulevards
- Bike Routes
- Bike Parking
- Others



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Shared Lane Markings

- Purposes

- Assist bicyclists with positioning
- Help avoid conflicts with parked cars
- Alert motorists to the fact that bicyclists are sharing the roadway
- Encourage safe passing distance
- Reduce incidence of wrong way bicycling

- Usually used on arterials and collectors with relatively low speeds

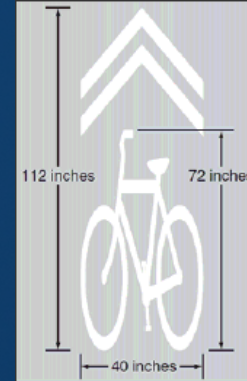


Photo Credit: Aaron Naparstek, courtesy of Streetsblog, Birth of a class iii bike route



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Bike Boulevards

- Defined: “a local street or series of contiguous street segments that have been modified to provide enhanced accommodation as a through street for bicyclists while discouraging through automobile travel”
- Potential components:
 - Traffic Calming (speed pillows, traffic circles, etc.)
 - Traffic Diverters
 - Additional Signage and Pavement Markings
- Concept of a “one-off network”
- Potential Obstacles:
 - Crossings of Major Roadways (enhancements available)
 - Local Resident/Motorist Opposition
- Significant Support Currently Exists in Rochester



*Bike only through access in Vancouver, B.C.
(Photo Credit - Dan Burden)*



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Bike Routes

- Defined: “signed links between origins and destinations that have been improved for, or are for some reason considered preferable for, bicycle travel”
- Signage Options:
 - Wayfinding
 - Local Route System

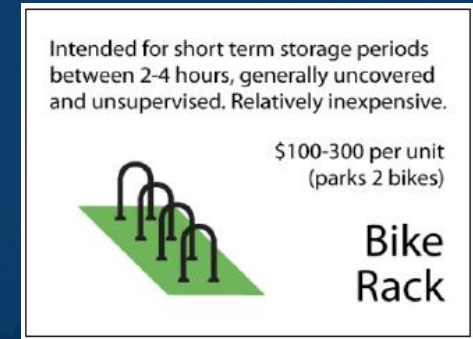


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Bike Parking

- Short Term Bicycle Parking (bike racks)
 - 2010 City purchase
 - City accepts requests for installation
 - Currently required for most new developments
- Long Term Bicycle Parking (lockers/shelters)
 - Recommended incentives to private sector
 - Recommended for regional transit hubs



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Potential Bike Parking Locations

Short-Term Bicycle Parking	Long-Term Bicycle Parking
K-12 Schools	Transit Centers (RGRTA, Amtrak)
Libraries	Parking Garages
Recreation Centers	Large Office Buildings
Museums (The Strong, Roch. Museum and Science Center)	Multi-family Residential Buildings
Sports Stadiums (Frontier Field, Brown's Square Soccer Stadium)	Universities (U of R)
Event Centers (Blue Cross Arena)	Central Business District
Rochester Public Market	Tourist Destinations (High Falls)
Retail Areas	



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Other Facilities and Treatments



*Contra-flow bike lane in Washington D.C.,
Photo Credit - DDOTDC*



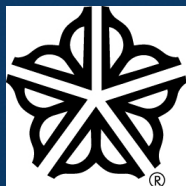
*A continuous colored, buffered bike lane treatment
in San Francisco, CA. Photo Credit - Matthew Roth*



*A buffered bike lane treatment in
Gainesville, FL*



*Bicycle traffic signal in Washington, D.C.
Photo Credit - DDOTDC*



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Other Facilities and Treatments



*A bike box in San Francisco, CA
Photo Credit - Michael Rhodes*



Right turn bypass lane in Boulder, CO



A two-way cycle track in St. Petersburg, FL

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Benefits Training Workshop

- Conducted for Agency Staff in October 2010

Protection Password = benefits
Conserve by Bicycle and Pedestrian Study Benefits Calculator

Roadway Information

Roadway Name:

Jurisdiction:

SR Designation:

US Designation:

Functional Class:

Number of Lanes:

AADT:

Signals:

Divided or Undivided:

One- or two-way:

Area Type:

Speed Limit:

Percent Heavy Vehicles:

Motor Vehicle LOS*:

Pavement Condition:

* (from ARTPLAN or Generalized Tables)

Corridor Characteristics

Average Traveler Trip Length (mi.):

Aesthetics (1-5):

Points of Interest (1-3):

Auto Occupancy (ppmv):

Bike/Ped Facility Length (mi.):

Independent Alignment Trail?:

Corridor Study Length: miles

Transit Service

Buses Per Hour:

Bus Occupancy (ppb):

Trains Per hour:


Span of Service (hours per day):

Bus LOS*:

Analysis Zone

Ellipse Length (mi.):

Ellipse Width (mi.):



Analyst:

Date:

Agency/Company:

Scenario:

Influence Area Demographics

Population within 10 miles (people):

Population within 0.5 miles (people):

Population Density (pop/sq. mi.):

Employment Density (jobs/sq mi):


Household Income (\$/household):

Connectivity Measures

Pedestrian:

Bicycle:

[Enter Ped and Bike LOS Data](#)



Outside Lane Width:

Shoulder/Bike Lane Width:

Bicycle LOS = 3.92 D

On street Parking? Width:

Occupancy:

Buffer Width:

Tree Spacing:

Pedestrian LOS = 2.79 C

Sidewalk?

Sidewalk? Width:

Right-of-Way

Utilitarian Mode Splits	Person Trips (peak hr)	Volumes (peak hr)	Facility Users	
			Hourly	Daily
Motor Vehicles	1,793	1,254		
Transit	42	1		
Bicycle	1	1	1	10
Pedestrian	3	3	3	51

Daily Induced Recreational Users	
Midpoint	Facility
0	0
111	133

Total Daily Trips
10
184

Daily Benefits	
Fuel Savings	5 Gal
Fuel Cost Savings	\$13
CO2 Reductions	98 lbs
Health Benefits	\$90

Revised - 8/24/2010



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Outreach & Education Programs

- Goals of a Program
 - Increase the number of bicyclists in Rochester
 - Improve safe/appropriate behavior by bicyclists and motorists
- Target Audiences
 - Young bicyclists (and their parents)
 - Adult bicyclists
 - Senior bicyclists
 - Underserved bicyclists
 - Visiting bicyclists
 - Motorists
 - Pedestrians

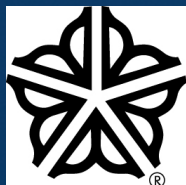


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Outreach & Education Recommendations

- Connect Partners to Maximize Effectiveness
- Identify a “Clearinghouse” Organization
- Develop (or Identify) Educational Materials
- Learn from Other Communities
- Develop an Education Plan



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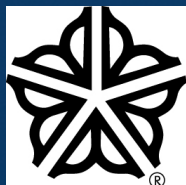


Catalog of Current O&E Partners

[illegible]

Outreach & Education Recommendations

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Questions, Comments, & Discussion –
Thank You for Attending!



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