

# MAG Bicycles Count Project

## *Data Collection Plan*

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9-17-2013

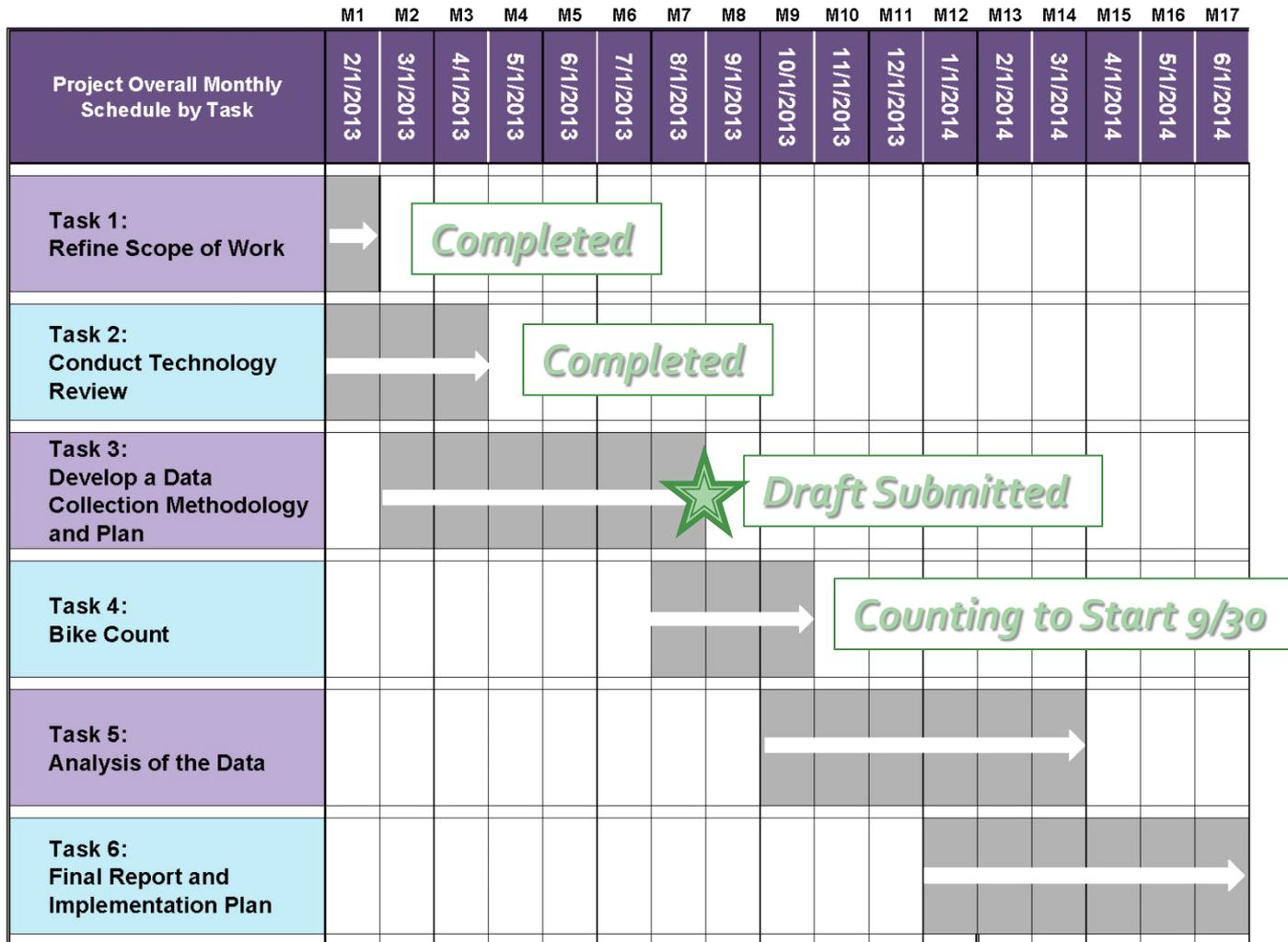
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# Agenda

- Schedule Overview
- Count Location Siting Criteria
- Count Locations and Technology
- Scheduling
- Next Steps



# Project Schedule

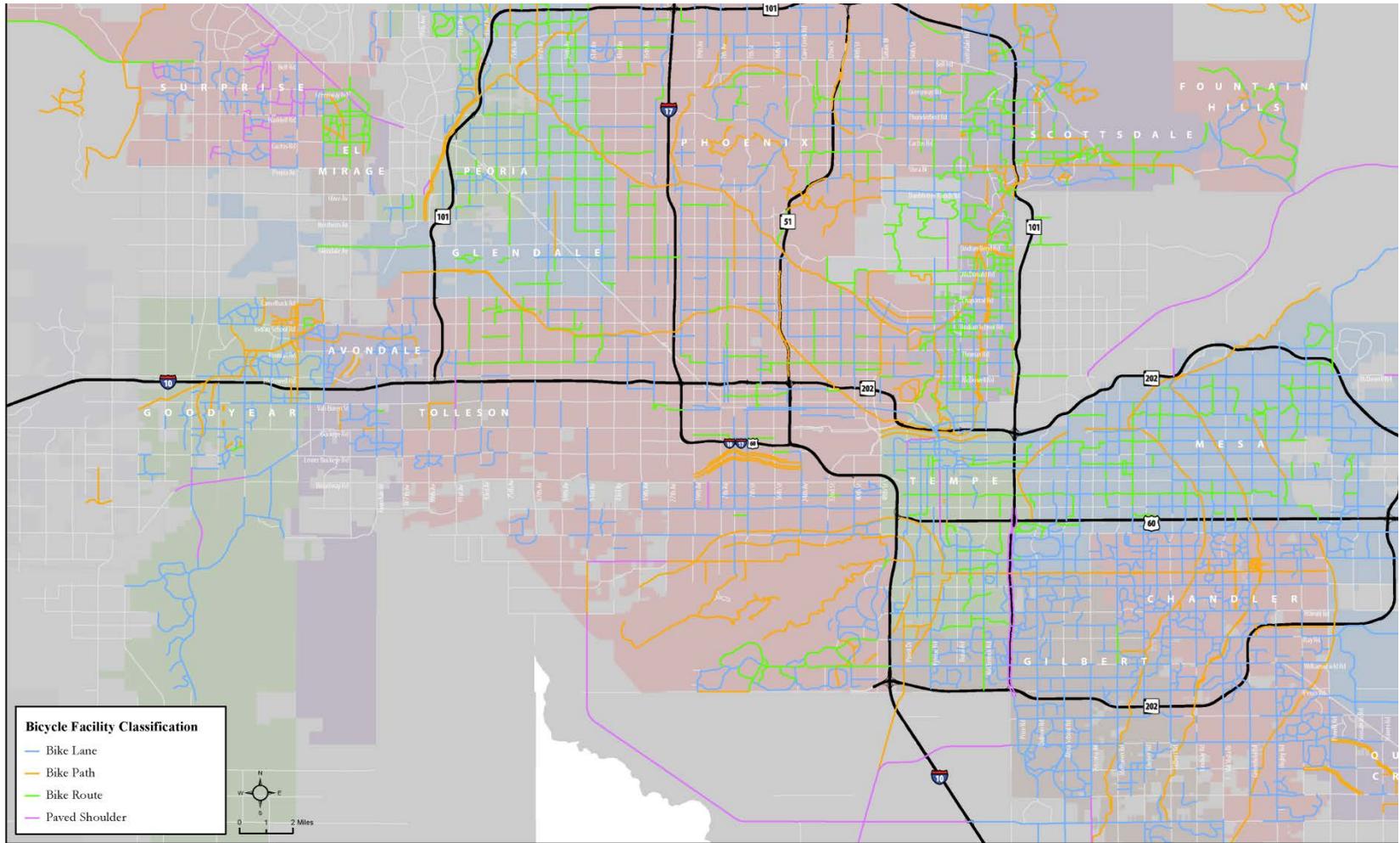


# Count Location Siting Criteria

1. Presence of existing bicycle facility
2. Representative sample of locations in relation to population density, employment density, and median household income
3. Equitable distribution of count sites by local jurisdiction based on population
4. Review and input from local agency staff

# Count Location Siting Criteria

## 1. Presence of existing bicycle facility



# Count Location Siting Criteria

## 2. Locations representative of the region

### Census Data Inputs to Sampling Strata (by Census Block Group)

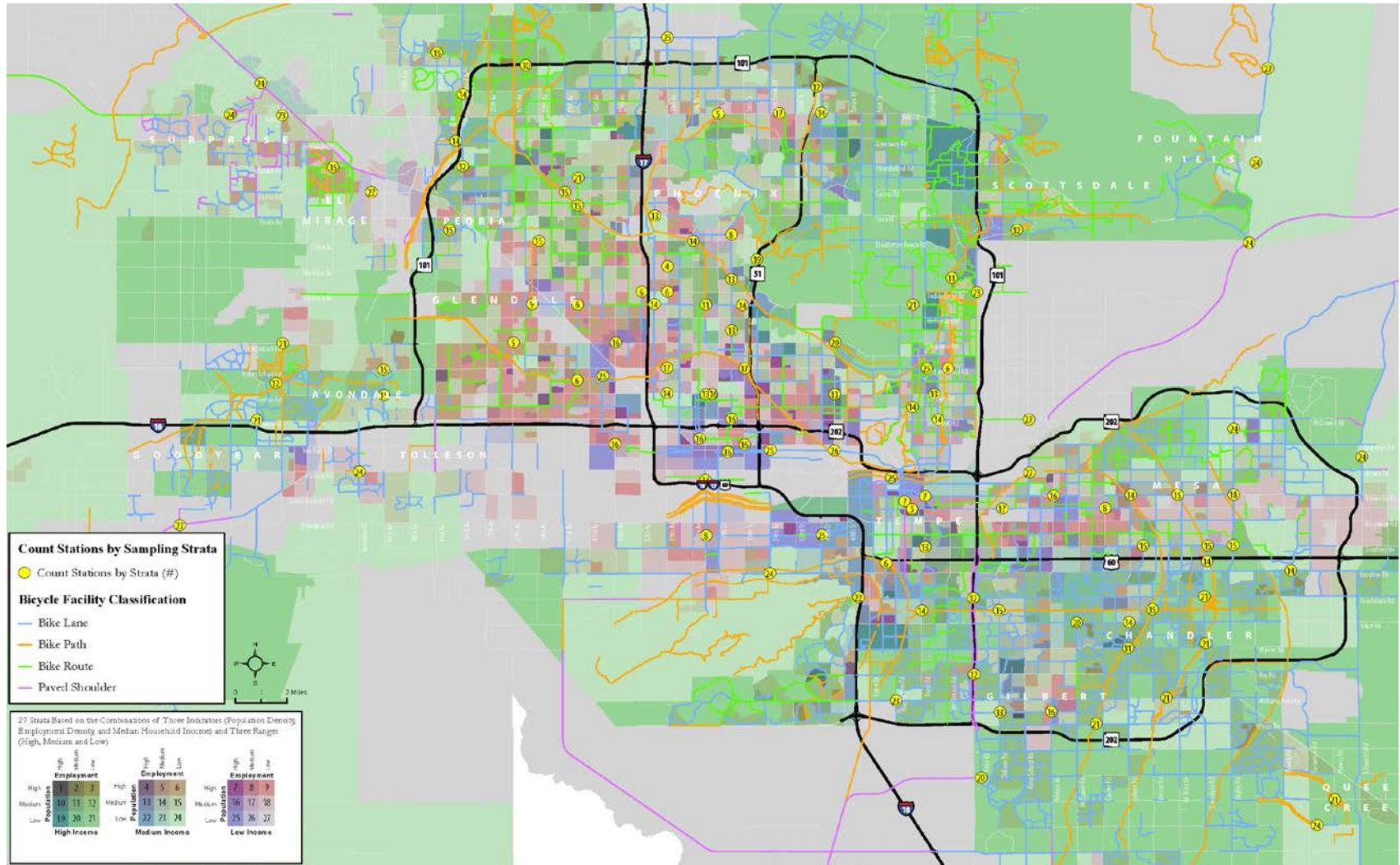
Category	Range	Breaks	Standard Deviation Range
<b>Population Density</b>			
High	1	Greater than 11.2 persons per acre	+0.5 and above
Medium	2	5.05 – 11.2 persons per acre	-0.5 and +0.5
Low	3	Less than 5.05 persons per acre	Below -0.5
<b>Employment Density</b>			
High	1	Greater than 5.56 jobs per acre	+0.5 and above
Medium	2	1.59 – 5.56 jobs per acre	0 and +0.5
Low	3	Less than 1.59 jobs per acre	Below 0 (below mean)
<b>Median Income</b>			
High	1	Greater than \$59,558	+0.5 and above
Medium	2	\$35,863 - \$59,558	-0.5 and +0.5
Low	3	Less than \$35,863	Below -0.5

### Definition of 27 Sampling Strata

		High	Medium	Low			High	Medium	Low			High	Medium	Low
		Employment					Employment					Employment		
High	Population	1	2	3	High	Population	4	5	6	High	Population	7	8	9
Medium		10	11	12	Medium		13	14	15	Medium		16	17	18
Low		19	20	21	Low		22	23	24	Low		25	26	27
		High Income					Medium Income					Low Income		

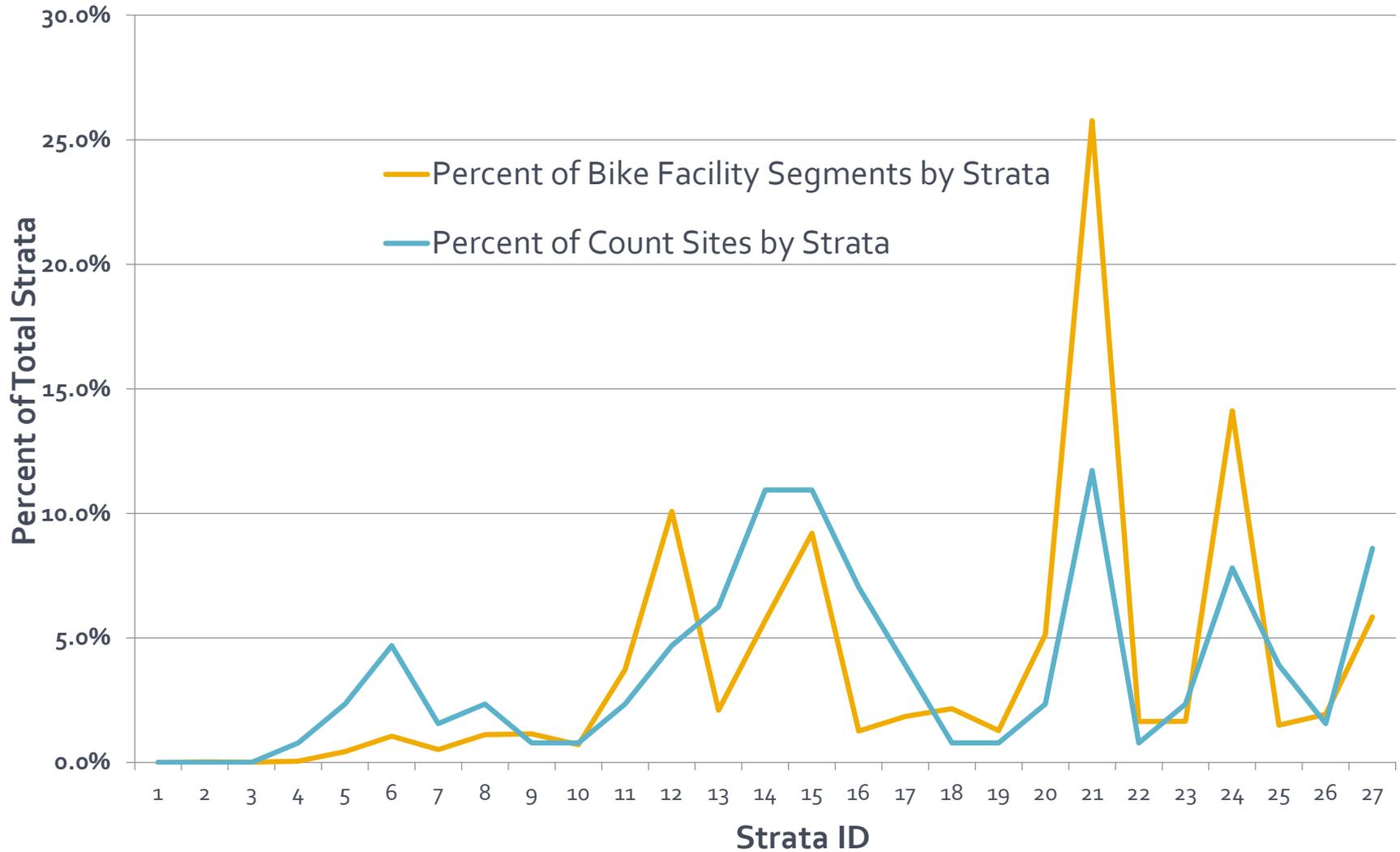
# Count Location Siting Criteria

## 2. Locations representative of the region



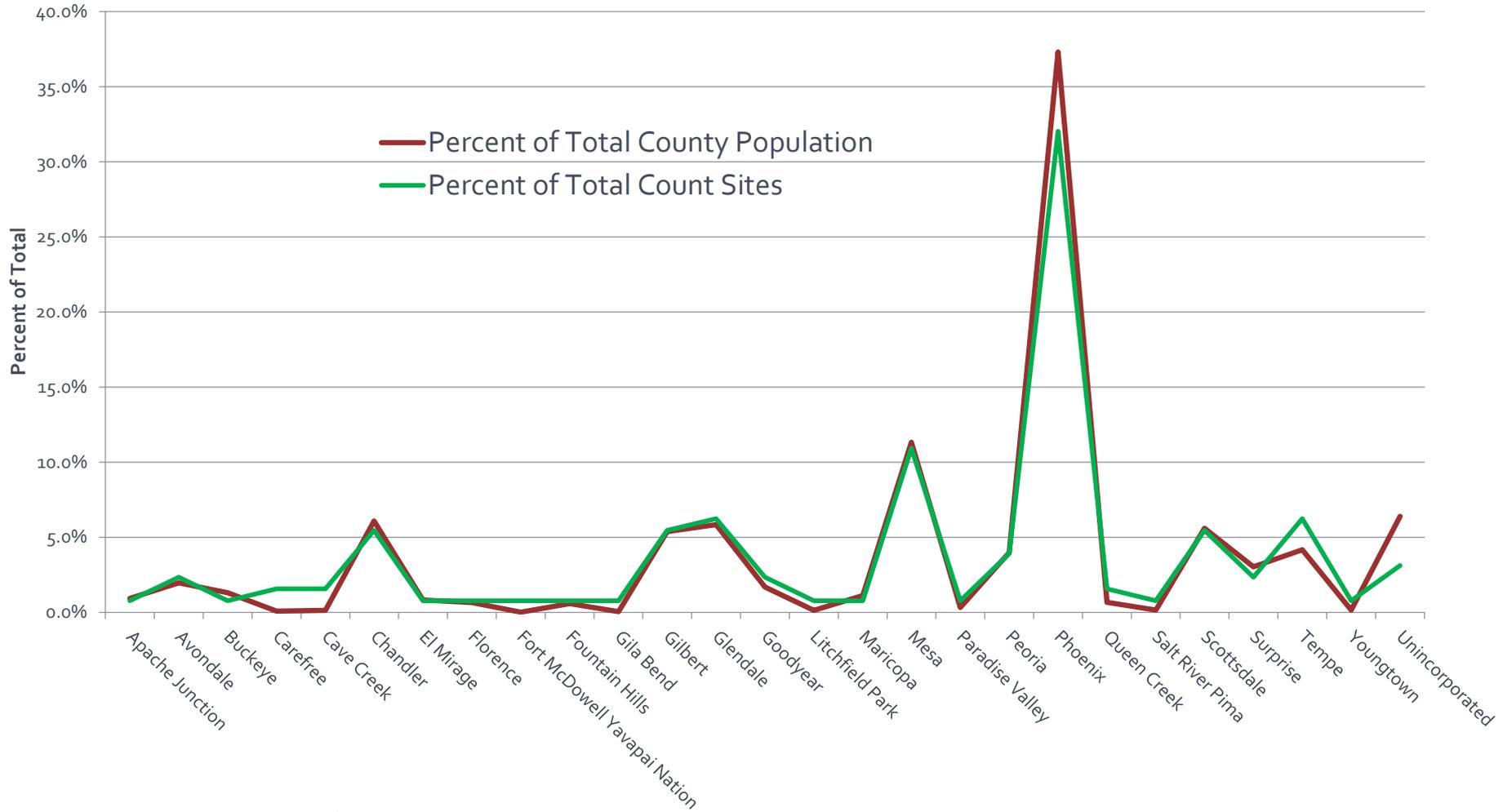
# Count Location Siting Criteria

## 2. Locations representative of the region



# Count Location Siting Criteria

## 3. Reflecting population distribution by local agency



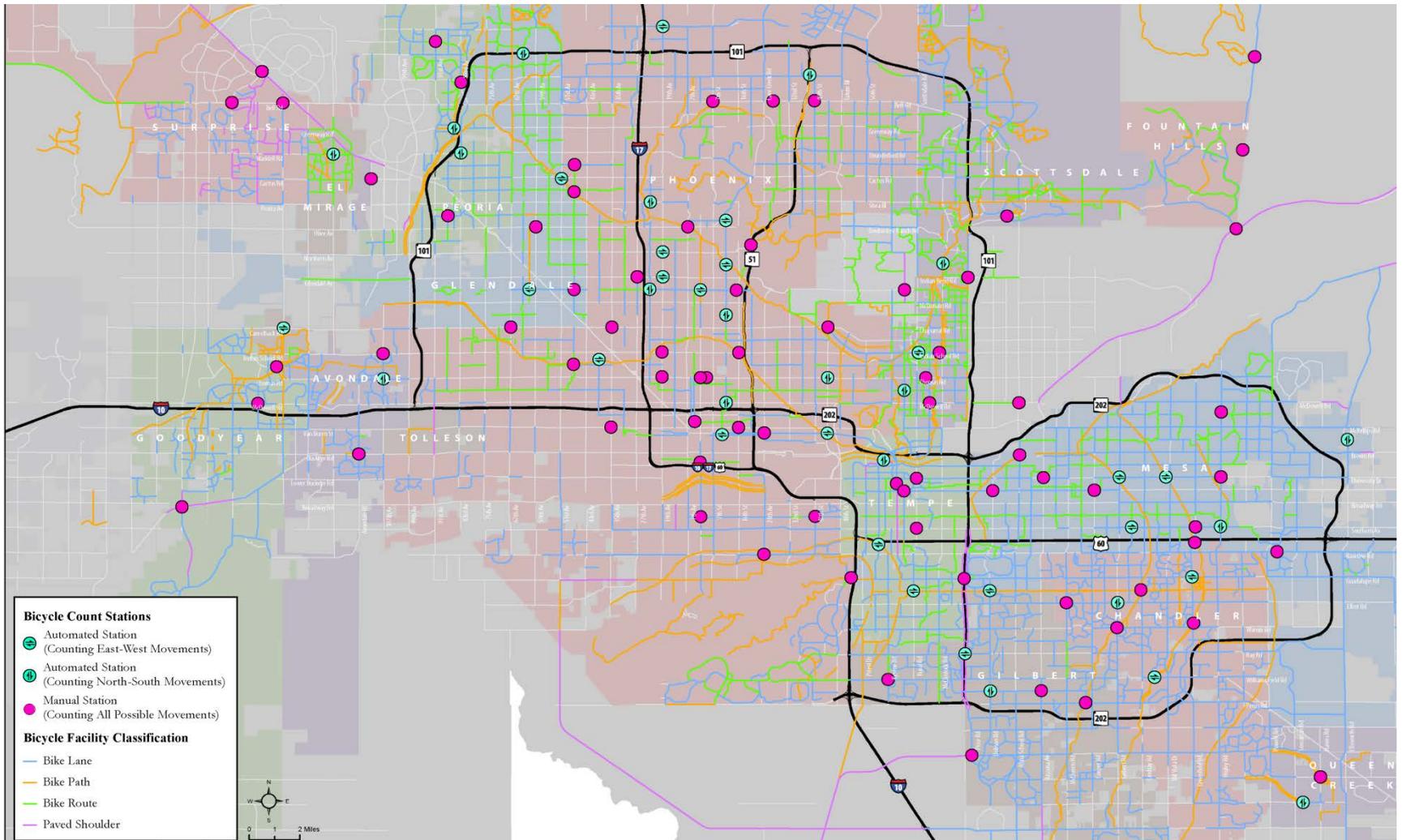
Comparing Percent of Total County Population and Total Count Stations by Local Jurisdiction

# Count Location Siting Criteria

3. *Reflecting population distribution by local agency*

Agency	2010 Pop	Percent of Total County Population	Number of Count Sites	Percent of Total Count Sites
Apache Junction	35,840	0.9%	1	0.8%
Avondale	76,238	2.0%	3	2.3%
Buckeye	50,913	1.3%	1	0.8%
Carefree	3,363	0.1%	2	1.6%
Cave Creek	5,015	0.1%	2	1.6%
Chandler	236,139	6.1%	7	5.5%
El Mirage	31,797	0.8%	1	0.8%
Florence	25,536	0.7%	1	0.8%
Fort McDowell Yavapai Nation	971	0.0%	1	0.8%
Fountain Hills	22,489	0.6%	1	0.8%
Gila Bend	1,922	0.0%	1	0.8%
Gilbert	208,453	5.4%	7	5.5%
Glendale	226,724	5.9%	8	6.3%
Goodyear	65,275	1.7%	3	2.3%
Litchfield Park	5,476	0.1%	1	0.8%
Maricopa	43,482	1.1%	1	0.8%
Mesa	439,193	11.3%	14	10.9%
Paradise Valley	12,820	0.3%	1	0.8%
Peoria	154,067	4.0%	5	3.9%
Phoenix	1,445,656	37.3%	41	32.0%
Queen Creek	26,361	0.7%	2	1.6%
Salt River Pima	6,289	0.2%	1	0.8%
Scottsdale	217,385	5.6%	7	5.5%
Surprise	117,517	3.0%	3	2.3%
Tempe	161,719	4.2%	8	6.3%
Youngtown	6,156	0.2%	1	0.8%
Unincorporated	248,168	6.4%	4	3.1%
Total	3,874,964	100.0%	128	100.00%

# Count Station Locations & Technology



# Automated Technology



Zelt TUBE Counter installed on bike path Source: *Eco-Counter*, 2013



Zelt TUBE counter affixed to a pole Source: *Eco-Counter*, 2013

- *Zelt TUBES SELECTIVE* monitor bicycles on roads in mixed traffic
- *Zelt TUBES GREENWAY* are mini-tubes designed specifically for dedicated bike paths
- **High accuracy** (+/- 3%) accuracy even in mixed traffic or with large groups of cyclists present



On-street pneumatic tubes Source: *Eco-Counter*, 2013

# Scheduling Automated Counting

Count ID	Jurisdiction	Count Location	Equipment	Installation Date	Intersection Leg
6	Carefree	Pima Rd & Cave Creek Rd	2 X 20'	9/30/13	South
39	Maricopa County	Gavilan Peak Pkwy & Pioneer Rd	2 X 20'	9/30/13	South
59	Phoenix	12th St & Hatcher Rd	2 X 20'	9/30/13	West
62	Phoenix	12th St & Arizona Canal Bike Path	Mini	9/30/13	West
63	Phoenix	Central Ave & Maryland Ave	2 X 20'	9/30/13	West
64	Phoenix	Bike Path parallel to SR-51 & Union Hills Dr	Mini	9/30/13	North
66	Phoenix	23rd Ave & Maryland Ave	2 X 20'	9/30/13	South
65	Phoenix	23rd Ave & Peoria Rd	2 X 20'	9/30/13	North
69	Phoenix	19th Ave & Deer Valley Rd	2 X 20'	9/30/13	West
73	Phoenix	19th Ave & Northern Rd	2 X Mini	9/30/13	West
74	Phoenix	19th Ave & Glendale	2 X Mini	9/30/13	West
98	Phoenix	12th St & Missouri Ave	2 X 20'	9/30/13	South
9	Chandler	Price Rd & W Ray Rd	2 X 20'	10/14/13	East
10	Chandler	Dobson Rd & Frye Rd	2 X 20'	10/14/13	North
60	Phoenix	44th St & Thomas Rd	2 X 20'	10/14/13	North
61	Phoenix	11th St & Jefferson St	1 X 20'	10/14/13	West
67	Phoenix	12th St and McDowell Rd	2 X 20'	10/14/13	North
70	Phoenix	44th St & Washington St	2 X 20'	10/14/13	East
102	Scottsdale	Indian Bend Wash Path north of McCormick Pkwy.	Mini	10/14/13	North
103	Scottsdale	68th St & Oak St	2 X 20'	10/14/13	North
104	Scottsdale	Scottsdale Road & Indian School Rd	2 X 20'	10/14/13	East
113	Tempe	Hardy Dr & Western Canal Bike Path	Mini	10/14/13	West
119	Tempe	Rio Salado Downstream Dam Bridge	Mini	10/14/13	South

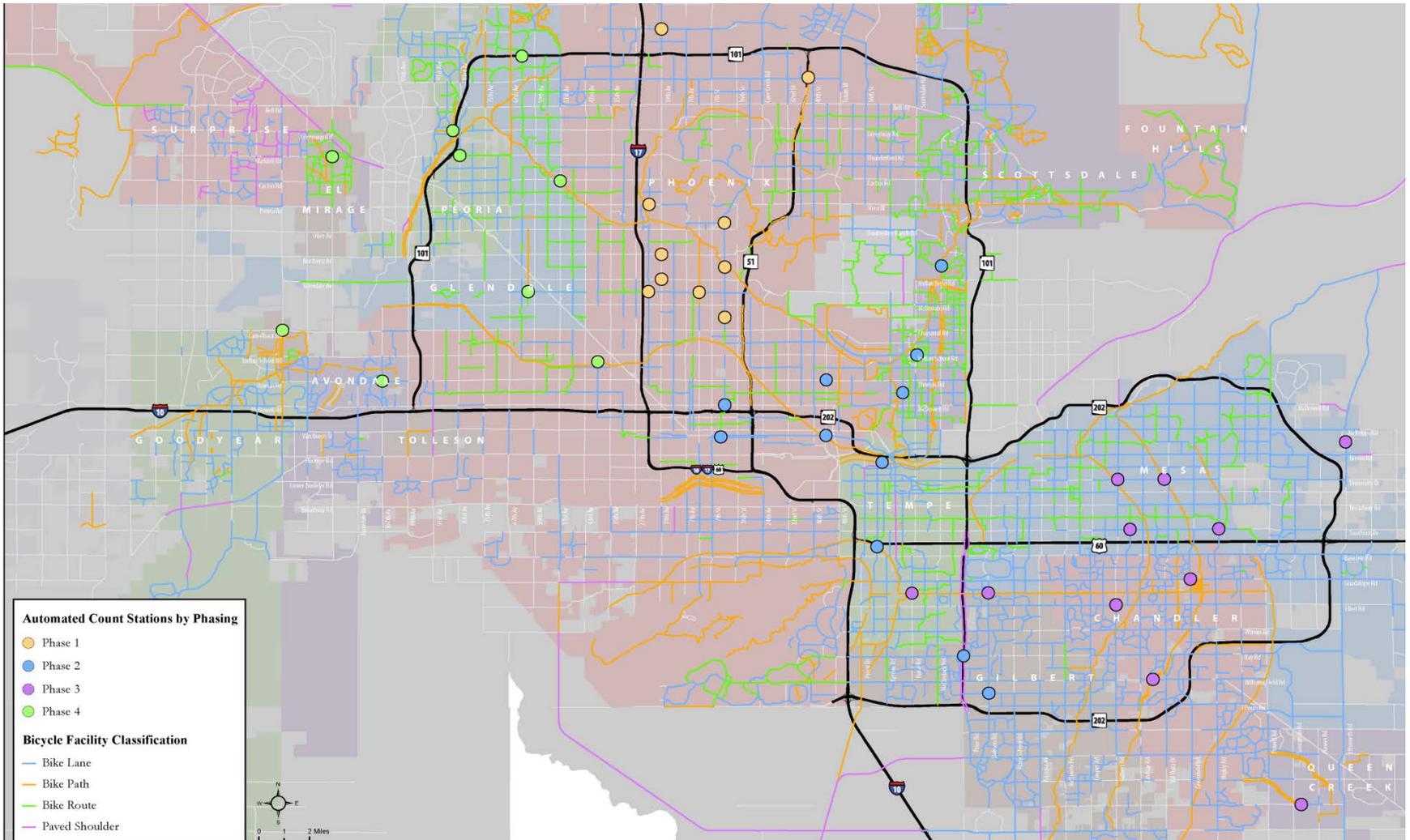
# Scheduling Automated Counting

Count ID	Jurisdiction	Count Location	Equipment	Installation Date	Intersection Leg
13	Chandler	Dobson Rd & Western Canal Bike Path	Mini	10/28/13	West
17	Gilbert	Gilbert Rd and Elliott Rd	2 X 20'	10/28/13	South
18	Gilbert	Greenfield Rd & Guadalupe Rd	2 X 20'	10/28/13	West
23	Gilbert	Eastern Canal Trail & E Williams Field Rd	2 X 20'	10/28/13	West
40	Mesa	Ellsworth Rd & McLellan Rd	2 X 20'	10/28/13	South
41	Mesa	Gilbert Rd & University Dr	2 X 20'	10/28/13	East
42	Mesa	Eastern Canal Bike Path and University Dr	2 X 20'	10/28/13	West
43	Mesa	24th St & Southern Ave	2 X 20'	10/28/13	West
46	Mesa	Higley Rd & Southern Ave	2 X 20'	10/28/13	North
100	Queen Creek	Sonoqui Wash Path & Chandler Heights Rd	Mini	10/28/13	South
115	Tempe	Rural Rd & Western Canal Bike Path	Mini	10/28/13	West
1	Avondale	107th Ave & Thomas Rd	2 X 20'	11/11/13	South
16	El Mirage	El Mirage Rd & Thunderbird Rd	2 X 20'	11/11/13	South
24	Glendale	61st Ave & Maryland Ave	2 X 20'	11/11/13	West
25	Glendale	63rd Ave & Loop 101 Bike/Ped Bridge	Mini	11/11/13	South
26	Glendale	51st Ave & Thunderbird Paseo (Canal Path)	Mini	11/11/13	East
35	Litchfield Park	Litchfield Rd & Camelback Rd	2 X 20'	11/11/13	East
54	Peoria	83rd Ave & Thunderbird Rd	2 X 20'	11/11/13	South
55	Peoria	115th Ave & Happy Valley Parkway	2 X 20'	11/11/13	East
58	Peoria	New River Bike Path & Greenway Rd	Mini	11/11/13	North
68	Phoenix	39th Ave & Grand Canal Bike Path	Mini	11/11/13	East

# Automated Count Phasing

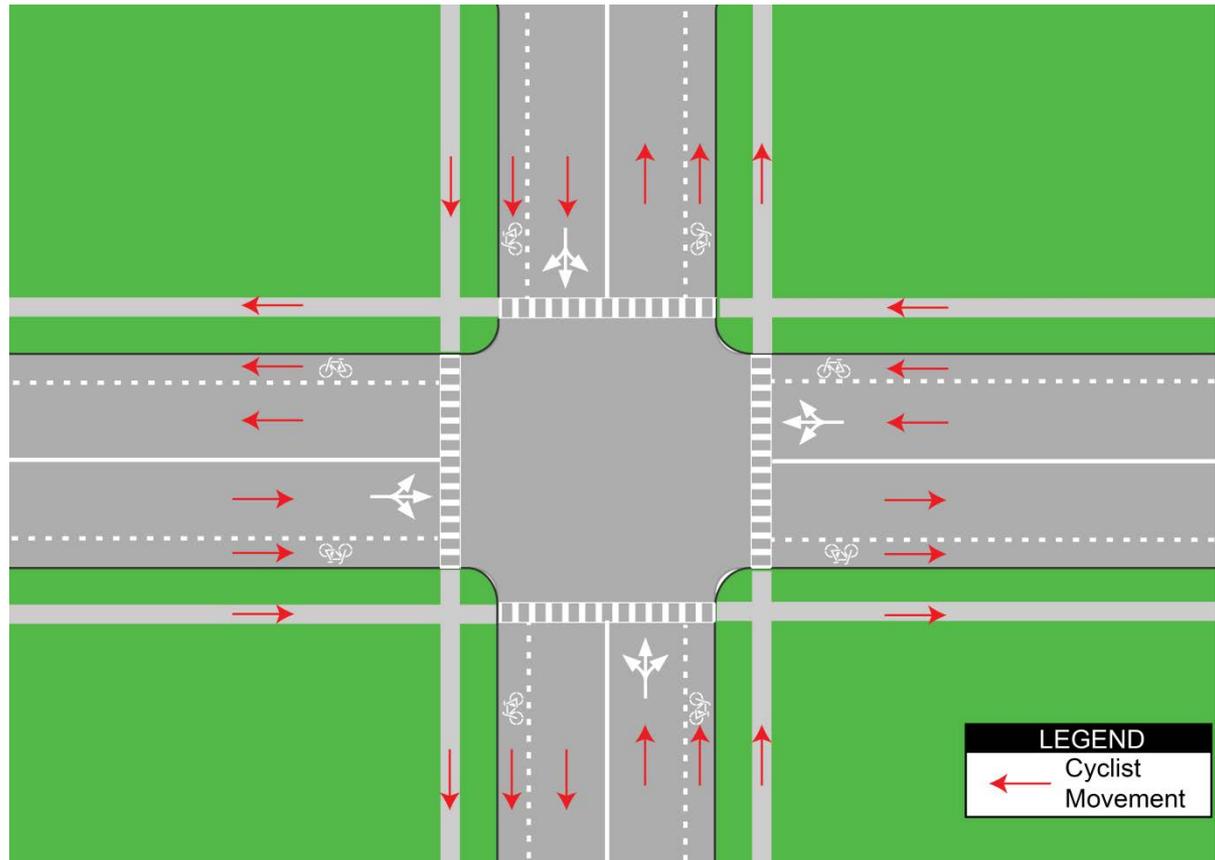
- Cost Savings (*rent fewer units, pay less shipping, monthly is cheapest lease*)
- Avoid school breaks
- Need for *TUBE Selective & TUBE Greenway*

# Automated Counting Phases



# Manual Counting

- Ins/Outs on each leg of intersection
- Distinguish travel lane/bike lane from sidewalk travel



# Manual Counting Scheduling

- Manual counting in month of October
- Evening peak period: 4:00pm – 6:00pm, (Tues -Friday)
- Afternoon peak period: 10am – 12noon, (Saturday)

# Next Steps

- Installation of Automated Equipment
- Coordination of Manual Counting
- Counting in October & November 2013
- Count Analysis December 2013 - March 2014

**- Thank You -**

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**MAG Bicycles Count Project**