



MPO Technical Committee Meeting

Thursday, August 21, 2025 – 10:00 am

Region 1 Planning Council
127 N. Wyman Street, Suite 100, Rockford, IL 61101

Agenda

1. Call to Order
2. Roll Call
3. Public Comment
4. Discussion Items
 - a. Alpine Road Traffic Signal Coordination and Timing Study
 - b. Local Public Agencies Maintenance Responsibilities
5. Action Items
 - a. Approval of the June 18, 2025 Meeting Minutes
 - b. Amendment to the FY 2026-2029 Transportation Improvement Program (Resolution 2025-17)
6. R1 Staff Reports
 - a. September MPO Technical Committee Meeting moved to Thursday September 25th
 - b. October MPO Technical Committee Meeting moved to Thursday October 30th
7. Agency Reports
8. Other Business
9. Adjournment

Opportunities for public comment will be afforded on all agenda items.

Persons who require special accommodations under the Americans with Disabilities Act or persons who require translation services (free of charge) should contact R1 Planning at 815-319-4180 at least two working days before the need for such services or accommodations.

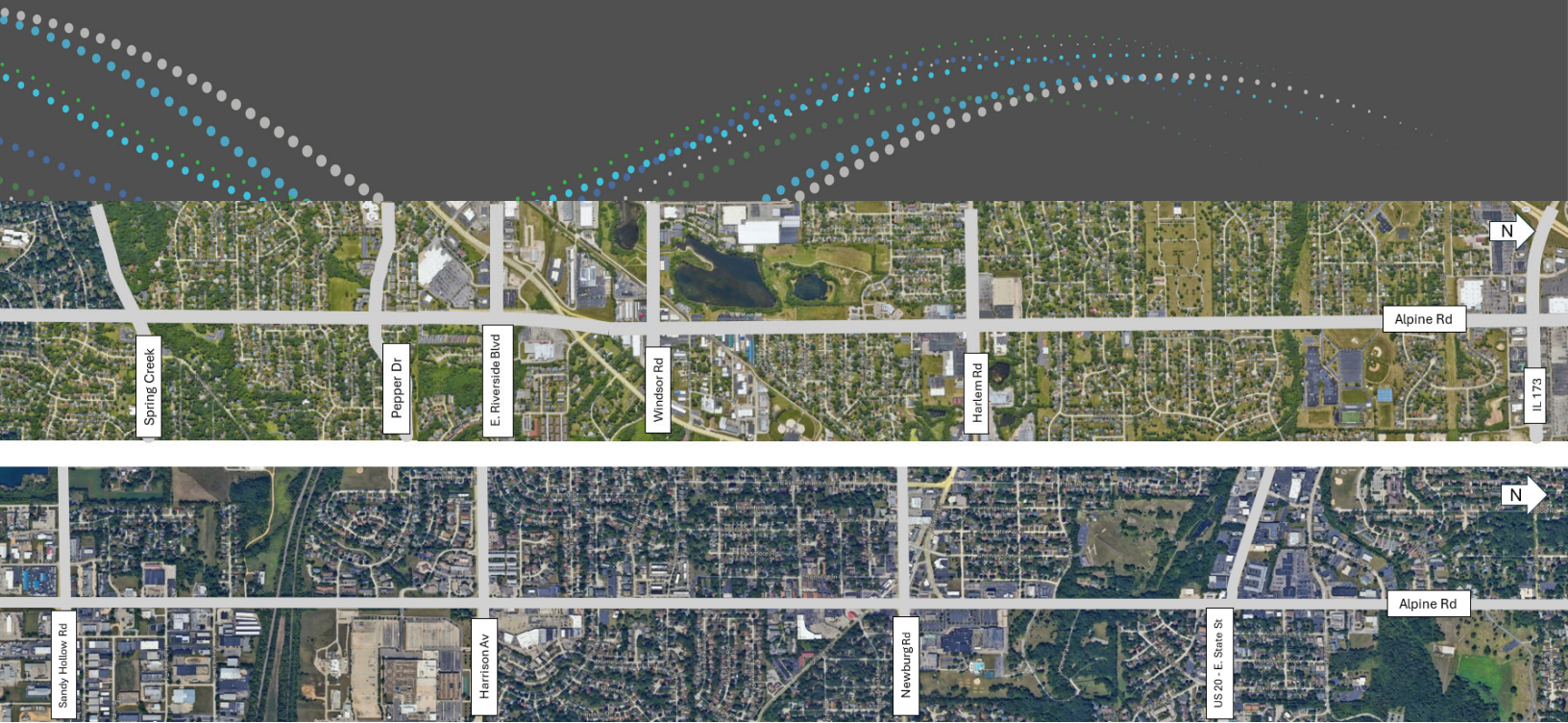
127 N Wyman St, First Floor, Rockford, IL 61101 | 815-319-4180 | info@r1planning.org

www.r1planning.org





Signal Coordination and Timing Study Machesney Park, Loves Park, and Rockford, IL



April 3, 2025
Submitted to:
Region 1 Planning Council

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Appendix B	Traffic Counts
Appendix C	Pedestrian Timings
Appendix D	Existing Synchro Reports
Appendix E	Signal Inventory
Appendix F	Proposed Synchro Reports
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Iteris, Inc. (Iteris) was contracted by the Region 1 Planning Council (R1PC) to provide professional traffic engineering services for a Signal Coordination and Timing Study along the Alpine Road corridor in the Cities of Loves Park and Rockford, and the Village of Machesney Park, IL. The scope of this work is to identify intersection improvements on the corridor that would enhance the experience for all users of the roadway. For example, optimizing the signal timing on the corridor will reduce stops and improve efficiency. Updating crosswalks will provide better protection for pedestrians. Modernizing equipment will reduce the likelihood of failures and make maintenance easier. Consistency will reduce the workload for all roadway users making it easier for them to make critical decisions safely.

The scope of work for this project includes data collection relevant to traffic and operations at 47 study intersections, a review of the existing conditions, development of optimized traffic signal timings, recommendations for hardware/software equipment, and implementation phases and costs.

This report focuses on the inventory and intersection level analysis of existing conditions.

1 EXISTING CONDITIONS

This project spans approximately ten miles on Alpine Road from Sandy Hollow Road to IL 173/West Lane Road in the Cities of Loves Park and Rockford, IL. The following intersections make up the project corridor.

- | | |
|--|---|
| 1. Sandy Hollow Road | 18. Highcrest Center/Edgebrook Entrance |
| 2. American Road | 19. Spring Creek Road |
| 3. Manchester Drive | 20. Pepper Drive |
| 4. Harrison Avenue | 21. Garden Lane/High Point Drive |
| 5. Beach Street | 22. Innsbruck Drive |
| 6. Florida Drive/Cleveland Avenue | 23. Siseman Road |
| 7. Louisiana Road | 24. East Riverside Boulevard |
| 8. Broadway/Newburg Road | 25. Valli Produce Entrance |
| 9. Center Terrace | 26. Windsor Road |
| 10. Rockford Career College Entrance | 27. Maple Avenue |
| 11. Larson Avenue | 28. Harlem Road |
| 12. East State Street (US Business 20) | 29. Schnucks Entrance |
| 13. Turner Street/Morsay Drive | 30. Roosevelt Road |
| 14. Rural Street | 31. Gladys Drive/Huskie Circle |
| 15. Guilford Road/Skyline Drive | 32. Rose Street |
| 16. Brendenwood Road/Guilford Road | 33. IL 173/West Lane Road |
| 17. Highcrest Road | |

The remaining 14 intersections are intersections within a third of a mile of Alpine Road to the east or west. These intersections are close enough to the corridor to very likely interact with traffic operations on Alpine Road. The following side street intersections make up this list of the remaining 14 study intersections.

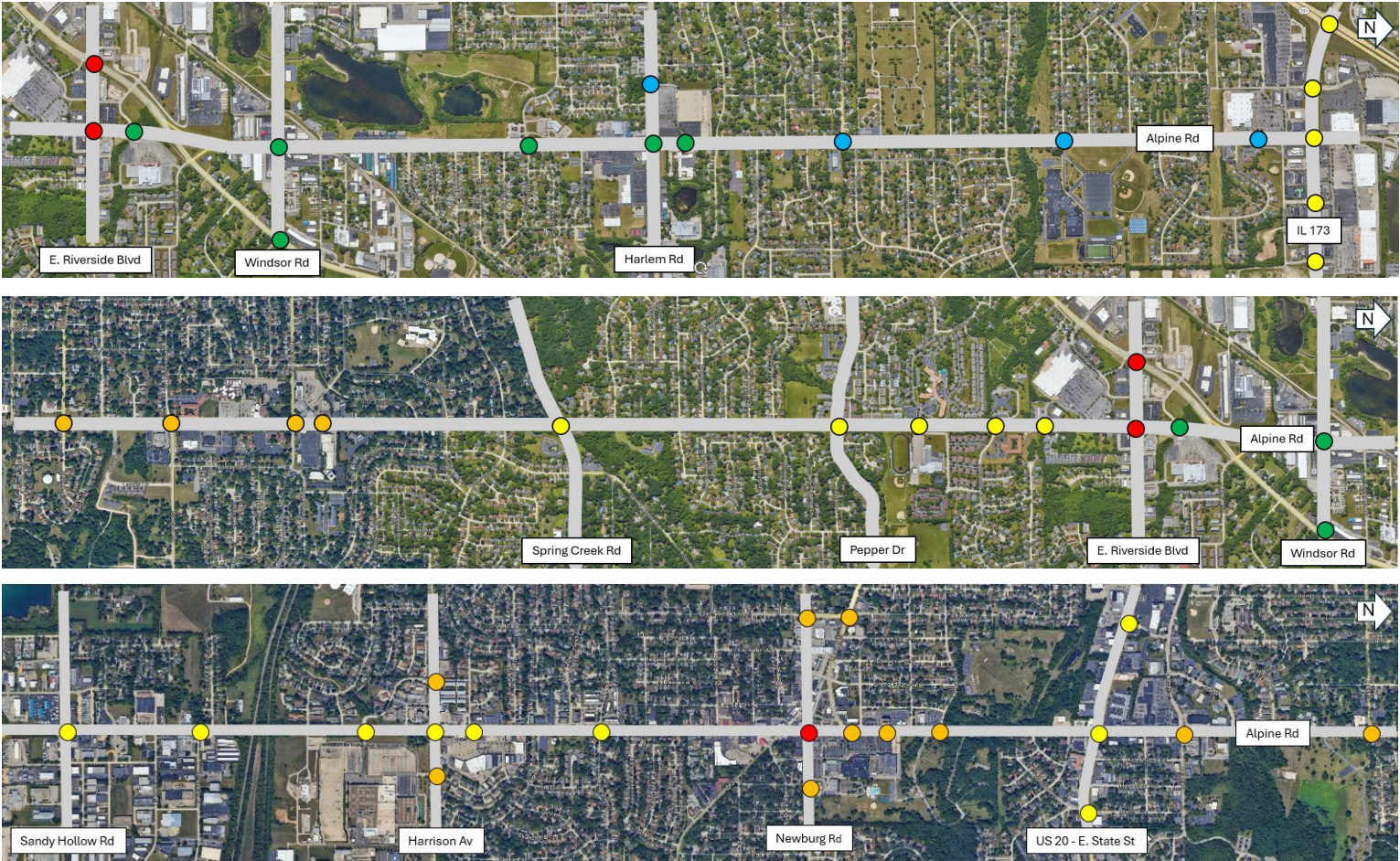
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|---|--|
| 34. Harrison Avenue & Manchester Drive | 41. East Riverside Boulevard & Forest Hills Road |
| 35. Harrison Avenue & Holmes Street | 42. Forest Hills Road & Windsor Road |
| 36. Broadway & Parkside Drive/Eastmoreland Avenue | 43. Harlem Road & Schnucks Entrance |
| 37. Newburg Road & Quentin Road | 44. IL 173 & IL 251/N 2 nd Street |
| 38. Charles Street & Parkside Drive | 45. IL 173 & Orlando Street |
| 39. East State Street & Lynmar Court | 46. IL 173 & Continental Drive |
| 40. East State Street & Dempster Road/Dawn Avenue | 47. IL 173 & Kimber Drive |

Through field visits and satellite imagery, Iteris notes that the traffic signals at the intersection of Alpine Road and Louisiana Road were removed sometime between May 2019 and August 2021. All other intersections remain under signal control.

Existing traffic signals along the corridor vary in ownership and maintenance among five agencies—Illinois Department of Transportation (IDOT), Winnebago County Highway Department (WCHD), City of Loves Park, City of Rockford, and the Village of Machesney Park.

Figure 1 on the following page shows a map of each project intersection with reference to its agency owner.

Figure 1 – Project Intersections



Legend:

- Illinois Department of Transportation
- City of Loves Park
- City of Rockford
- Winnebago County
- Village of Machesney Park



1.1 Roadway Network

Alpine Road is a north-south principal arterial roadway consisting primarily of two through lanes in each direction, with dedicated left-turn lanes at most signalized intersections. The posted speed limit on Alpine Road ranges between 30 mph to 45 mph with adjacent land uses consisting mostly of commercial, recreational, and residential. Schools adjacent to the corridor are Harlem High School, Lutheran High School, and Holy Family Catholic School.

The 2022 Average Annual Daily Traffic (AADT) on Alpine Road ranges from 13,200 vehicles per day (vpd) on its north end to 24,700 vpd on the south end. The project corridor spans approximately ten miles from Sandy Hollow Road to IL 173/West Lane Road.

1.2 Data Collection

In August 2024, Iteris began data collection on Alpine Road to collect turning movement counts, signal timing plans, and inventory on existing infrastructure to identify opportunities to improve safety and consistency. Weekday traffic counts from 6:00 AM to 7:00 PM were collected at each study intersection.

According to the traffic counts collected, the study intersections along Alpine Road have AM peaks beginning at 7:15 AM. The midday peaks begin between 11:30 AM and 12:30 PM and the PM peaks begin between 3:30 PM and 4:30 PM.

1.3 Signal Operation

Under existing conditions, 12 study intersections run free operations all day, and 35 intersections run coordination by time-of-day (TOD). Table 1 on the following page shows the existing cycle lengths at coordinated intersections during the peak hours according to each intersection's programmed schedule.

Table 1.1 - Existing Conditions

EXISTING CYCLE LENGTHS			
ALPINE ROAD	AM PEAK C/L	MD/OFF-PEAK C/L	PM PEAK C/L
Sandy Hollow Road to Beach Street	120 sec	110 sec	130 sec
Broadway/Newburg Road to Larson Avenue	140 sec	140 sec	100 sec
US 20 – E State Street to Innsbruck Drive	130 sec	140 sec	140 sec
Harlem Road to Schnucks Entrance	90 sec	90 sec	90 sec
IL 173 – WEST LANE ROAD			
IL 251/N 2 nd Street to Kimber Drive	130 sec	110 sec	130 sec
FOREST HILLS ROAD			
Riverside Boulevard	126 sec	126 sec	126 sec
US 20 – E STATE STREET			
Lynmar Court to Dempster Road/Dawn Avenue	130 sec	140 sec	140 sec
BROADWAY/NEWBURG ROAD			
Parkside Drive/Eastmoreland Avenue	100 sec	100 sec	100 sec
Quentin Road	FREE	70 sec	70 sec
HARRISON AVENUE			
Manchester Drive to Holmes Street	120 sec	110 sec	130 sec

As shown above, the corridor includes a variety of cycle lengths within the same peak period. Cycle lengths influence the progression of traffic along a corridor. Inconsistencies in cycle lengths can cause an increase in stops and delays.

Generally, traffic signals within the project area run free operations overnight and begin the morning signal timing plans at 5:45 AM or 6:00 AM. Three intersections operate with one signal timing plan all day: Alpine Road’s intersections with Harlem Road and Schnucks Entrance, and Broadway at Parkside Drive. **Figure 2** on the following page details the various times of the day the signal timing plans change at each intersection on weekdays. It shows stretches of the study corridor running the same time-of-day schedule, with the longest distance of three and one-half miles between US 20 – E State Street and Innsbruck Drive.

Many intersections in the project area are interconnected. Interconnect provides communication between individual signals and allows these signals to keep synchronized clocks. Without the ability to maintain synchronization between signals, individual clocks can drift over time, creating a maintenance problem in the long-term. The intersections on Alpine Road from Sandy Hollow Road to Florida Drive/Cleveland Avenue are interconnected using radio signals. The existing signal timing schedule shown in Figure 2 suggests some communication from US 20 – E State Street to Spring Creek Road, but field inventory shows fiber interconnect at only two intersections: at US 20 – E State Street and at Turner Street/Morsay Drive. Fiber terminal boxes without fiber connections were found at Brendenwood Rd/Guilford, Highcrest Center/Edgebrook Entrance, and at Pepper Drive. Fiber interconnect also exists between the signals on IL



173.

Figure 2 - Existing Day Plan Schedule

EXISTING TOD SCHEDULES		1 am	2 am	3 am	4 am	5 am	6 am	7 am	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm	4 pm	5 pm	6 pm	7 pm	8 pm	9 pm	10 pm	11 pm	12 am
WEEKDAYS																									
Alpine Road																									
1	Sandy Hollow Road							133 [120] 5:45 - 9:00				111 [110] 9:00 - 14:30				122 [130] 14:30 - 18:00				111 [110] 18:00 - 22:30					FREE
2	American Road							133 [120] 5:45 - 9:00				111 [110] 9:00 - 14:30				122 [130] 14:30 - 18:00				111 [110] 18:00 - 22:00					FREE
3	Manchester Drive							133 [120] 5:45 - 9:00				111 [110] 9:00 - 14:30				122 [130] 14:30 - 18:00				111 [110] 18:00 - 22:00					FREE
4	Harrison Drive							133 [120] 5:45 - 9:00				111 [110] 9:00 - 14:30				122 [130] 14:30 - 18:00				111 [110] 18:00 - 22:00					FREE
5	Beach Street							9 [120] 5:45 - 9:00				1 [110] 9:00 - 14:30				5 [130] 14:30 - 18:00				1 [110] 18:00 - 22:00					FREE
6	Florida Drive/Cleveland Avenue																								
7	Louisiana Road																								
8	Broadway/Newburg Road																								
9	Center Terrace																								
10	Rockford Career College																								
11	Larson Avenue																								
12	US 20 - E State Street																								
13	Turner Street/Morsay Drive																								
14	Rural Street																								
15	Guilford Road/Skyline Drive*																								
16	Brendenwood Road/Guilford Road																								
17	Highcrest Road																								
18	Highcrest Center/Edgebrook Entrance																								
19	Spring Creek Road																								
20	Pepper Drive																								
21	Garden Lane/High Point Drive																								
22	Innsbruck Drive																								
23	Siseman Road																								
24	E Riverside Boulevard																								
25	Valli Produce Entrance																								
26	Windsor Road																								
27	Maple Avenue																								
28	Harlem Road																								
29	Schnucks Entrance																								
30	Roosevelt Road																								
31	Gladys Drive/Huskie Circle																								
32	Rose Street																								
33	IL 173 - West Lane Road																								

* Controller screen frozen

LEGEND/NOTES

X[XXX] = Coord. Plan Number [Cycle Length]

A white box indicates FREE operation, a shaded box indicates coordinated operation.

□ = AM PEAK □ = MD/OFF PEAK □ = PM PEAK □ = FREE

Figure 2 - Existing Day Plan Schedule (cont.)

EXISTING TOD SCHEDULES		1 am	2 am	3 am	4 am	5 am	6 am	7 am	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm	4 pm	5 pm	6 pm	7 pm	8 pm	9 pm	10 pm	11 pm	12 am	
WEEKDAYS																										
Harrison Avenue																										
34	Manchester Drive								133 [120]				111 [110]			1	431 [130]		1	221 [100]						
									5:45 - 9:00				9:00 - 14:30			2	15:00 - 18:00		1	18:30 - 21:30						FREE
35	Holmes Street								133 [120]				111 [110]				122 [130]			111 [110]						FREE
									5:45 - 9:00				9:00 - 14:30				14:30 - 18:30			18:30 - 22:00						
Broadway/Newburg Road																										
36	Parkside Drive/Eastmoreland Avenue												111 [100]													
37	Quentin Road								FREE				211 [70]							311 [100]						FREE
													07:00 - 18:00							18:00 - 22:00						
Parkside Drive																										
38	Charles Street																									
US 20 - E State Street																										
39	Lynmar Court								321 [130]											321 [130]						FREE
									06:00 - 10:00											18:30 - 22:00						
40	Dempster Road/Dawn Avenue								321 [130]											321 [130]						FREE
									06:00 - 10:00											18:30 - 22:00						
Forest Hills Road																										
41	E Riverside Boulevard												311 [126]							111 [80]						FREE
													6:00 - 18:00							18:00 - 21:00						
42	Windsor Road																									
Harlem Road																										
43	Schnucks Entrance																									
IL 173 - West Lane Road																										
44	IL 251/N 2nd Street								111 [130]				211 [110]				311 [130]			211 [110]						FREE
									6:00 - 9:30				9:30 - 14:00				14:00 - 18:00									
45	Orlando Street								111 [130]				211 [110]				311 [130]			211 [110]						FREE
									6:00 - 9:30				9:30 - 14:00				14:00 - 18:00									
46	Continental Drive								111 [130]				211 [110]				311 [130]			211 [110]						FREE
									6:00 - 9:30				9:30 - 14:00				14:00 - 18:00									
47	Kimber Drive								111 [130]				211 [110]				311 [130]			211 [110]						FREE
									6:00 - 9:30				9:30 - 14:00				14:00 - 18:00									

* Controller screen frozen

1.4 Review of Basic Timing Parameters

As part of this project, the signal timing parameters and the phasing configuration for all study intersections were reviewed to ensure safe operation of the intersections and to check whether they meet the minimum recommendations. The timing parameters that were reviewed include:

- Minimum Green Time
- Yellow Time
- All-Red Clearance
- Walk Time
- Flashing Don't Walk

Some of the settings (i.e. vehicle and pedestrian clearance intervals) are important for the safe operation of intersections and can provide significant liability if they do not meet the minimum standards. Other settings, such as the actuated settings (recall operation), assist in providing more efficient operation of the intersection during coordinated and non-coordinated times. In developing the updated timing parameters, Iteris used the guidelines set forth in the latest Manual on Uniform Traffic Control Devices, ITE Signal Timing Manual and the current IDOT practices and preferences.

Existing basic timing parameters were all obtained manually during field visits. After performing the field review, the basic timing parameters were checked to determine if the existing values met the minimum standards, or if they needed to be updated.

Minimum Green Time

According to the ITE Signal Timing Manual, the minimum green should be 2-5 seconds for a left-turn phase, 4-10 seconds for a side street through, and 10-15 seconds for mainline through. A review of the existing timings showed that most signals provided at least these recommended values or higher. The intersections of Alpine Road at Dempster Road, Lynmar Court, and American Road provide a minimum green time of 1 second for some left-turn phases. It is recommended that these be increased to meet the recommended green time of 2-5 seconds.

Other intersections provide a disproportionate amount of green time for the coordinated phases. At Alpine Road and Valli Produce Entrance, the north-south through movements have a minimum green time of 40 seconds. At Alpine Road and Garden Lane/High Point Drive, the north-south through movements have a minimum green time of 28 seconds. Lastly, the mainline through movements at Quentin Road and Newburg Road and at Alpine Road and Florida Drive/Cleveland Avenue have a 25 second minimum green time.

Yellow Time

The yellow time is typically based on the approach speed for each movement. Using the standard ITE clearance interval formula, the minimum required yellows are shown in **Table 1.2**.

Table 1.2 - ITE Minimum Yellow Intervals

SPEED LIMIT (MPH)	MINIMUM YELLOW TIME (SEC)
<25	3.0
30	3.2
35	3.6
40	3.9
45	4.3
50	4.7
55	5.0
60	5.4
65	5.8

Based on the posted speed limit along Alpine Road, its mainline movements should have a minimum yellow interval of 3.9 to 4.3 seconds. Existing mainline movements on Alpine Road have existing intervals that meet the minimum requirements except at five intersections. The intersections of Rose Street, Gladys Drive/Huskie Circle, Maple Avenue, Siseman Road, and Garden Lane/High Point Drive should have a minimum yellow interval of 4.3 seconds. At intersections adjacent to Alpine Road, the mainline movements generally meet the minimum requirements, except at Charles Street and Parkside Drive where the yellow time should be 3.6 seconds and at Forest Hills Road and Windsor Road where it should be 4.3 seconds.

For turning movements, the approach speed used to determine yellow interval is lower than the posted speed. This is because drivers inherently slow down to make a turn. Typical drivers will slow to 15-20 mph to make a turn. Using the ITE yellow table, this would require less than 3 seconds of yellow. ITE recommends never using less than a 3 second yellow interval. A review of the existing timing showed that all turning phases on the corridor provide 3.0 seconds of yellow time.

All-Red Clearance Time

If used, red clearance interval, as per ITE Signal Timing Manual, typically ranges from 0.5 to 2.0 seconds. The red clearance interval is provided to allow vehicles additional time to clear the intersection if entered on the yellow clearance. A review of existing timings shows the following intersections provide all-red times exceeding 2.0 seconds.

1. Alpine Road & Manchester Drive
2. Alpine Road & Beach Street
3. Alpine Road & Florida Drive/Cleveland Avenue
4. Alpine Road & Broadway/Newburg Road
5. Alpine Road & US 20 – E State Street
6. Alpine Road & Pepper Drive
7. Alpine Road & Garden Lane/High Point Drive
8. Alpine Road & Innsbruck Drive
9. Alpine Road & Valli Produce Entrance
10. Alpine Road & Windsor Road
11. Alpine Road & Harlem Road
12. Alpine Road & Rose Street
13. Alpine Road & IL 173
14. Parkside Drive & Charles Street
15. US 20 – E State Street & Lynmar Court
16. US 20 – E State Street & Dempster Road
17. IL 173 & N 2nd Street
18. IL 173 & Orlando Street



19. IL 173 & Continental Drive

20. IL 173 & Kimber Drive

Pedestrian Clearance Time

According to MUTCD guidelines and current IDOT practices, the pedestrian clearance (flashing don't walk) interval was calculated using the following formula:

$$FDW = \frac{D}{S}$$

Where D is the crosswalk distance (curb to curb), and S is the assumed pedestrian walking speed of 3.5 feet/second.

While on site, Iteris measured the crossing distance for each crosswalk. Iteris found the programmed pedestrian clearance times inadequate for at least one pedestrian crossing at many intersections. Iteris also found programmed pedestrian clearances at Alpine Road and Valli Produce Entrance provided significantly more than the calculated clearance.

Walk Time

The MUTCD requires a minimum walk time of 4 seconds for a signalized pedestrian movement but recommends at least 7 seconds be used when possible. The walk interval is calculated using the following formula:

$$W = \frac{D}{S} - FDW$$

Where D is the distance from the furthest pedestrian push-button to the opposite curb, S is a speed of 3.0 feet/second, and FDW is the Flashing Don't Walk interval calculated in the previous step. A review of existing pedestrian timings shows three intersections provide a walk time of less than 7 seconds. Iteris also found programmed pedestrian walk times at Alpine Road and Valli Produce Entrance provide significantly more than the calculated value. Calculated pedestrian timings can be found in the Appendix.

1.5 Existing Intersection Operations

The effectiveness of transportation facilities is measured in terms of Level of Service (LOS), ranging from LOS A to LOS F. LOS A represents free-flow conditions and LOS F represents oversaturated conditions. The LOS criteria for signalized intersections, as defined in the Highway Capacity Manual, Sixth Edition (HCM), are provided in **Table 1.3**.

Table 1.3 - Level of Service Criteria for Signalized Intersections

LEVEL OF SERVICE (LOS)	AVERAGE DELAY	VOLUME-TO-CAPACITY (V/C) RATIO
A	≤ 10.0 seconds	< 1.0
B	> 10.0 and ≤ 20.0 seconds	< 1.0
C	> 20.0 and ≤ 35.0 seconds	< 1.0
D	> 35.0 and ≤ 55.0 seconds	< 1.0

LEVEL OF SERVICE (LOS)	AVERAGE DELAY	VOLUME-TO-CAPACITY (V/C) RATIO
E	> 55.0 and ≤ 80.0 seconds	< 1.0
F	> 80.0 seconds	< 1.0

Iteris analyzed the study intersections for the weekday peak hours and Saturday peak hour using Synchro 11 capacity analysis software. The Synchro model for existing weekday peak hours shows most intersections operating with LOS D or better.

At Alpine Road and Sandy Hollow Road, the east- and westbound movements operate at LOS E in the AM and PM peak hours. Analyses show the westbound left turn near capacity in the AM, and exceeding capacity in the PM peak. In the afternoon, it is likely that westbound left-turning vehicles are double-cycled. Collected traffic counts shown approximately 350 vehicles in the afternoon peak hour, exceeding the recommended volume for dual left turn lanes.

At Alpine Road and Spring Creek Road, the intersection operates at LOS E during the AM and PM peak hours. In the AM peak hour, the eastbound and northbound approaches operate at LOS F and have v/c ratios greater than 1.0 meaning the volume exceeds the capacity. During this peak, the eastbound through movement's 95th percentile queue is projected to be at least 613 feet, with indication that the queue length could be longer. Left-turning vehicles are anticipated to use the two-way left-turn lane (TWTL) to reach the eastbound left-turn lane. The 95th percentile queue of the northbound through movement in the AM peak period is projected to be at least 632 feet and blockage of the left-turn lane is anticipated due to the raised median installed on Alpine Road. During the PM Peak hour, the northbound approach operates at LOS F, while the eastbound and southbound approaches operate at LOS E. The v/c ratio of the northbound through movement exceeds 1.0, with a projected 95th percentile queue length of 667 feet. Field observations confirmed that the northbound queues occasionally extended to Brookview Road, located approximately 725 feet south of Spring Creek Road.

At Alpine Road and East Riverside Boulevard, the westbound left movement in the PM peak operates at LOS F and exceeds capacity. The projected queue length for the westbound left turn during this period is at least 334 feet, exceeding the available storage space of 175 feet and likely spilling over to the adjacent through lane. Another movement exceeding the available storage space is the northbound left-turn lane at E State Street in the PM peak period. Currently, the projected 95th percentile queue length is 391 feet, and the available storage space is 125 feet. Alpine Road south of its intersection with E State Street provides a striped median, which the northbound queue can utilize to prevent queueing on the adjacent through lane.

Detailed results for each study intersection under existing conditions are summarized in the Appendix.

2 TRAFFIC SIGNAL INVENTORY

As part of this project, Iteris was tasked with collecting a detailed inventory of the signals shown in **Table 2.1**. With this data, Iteris was also asked to provide recommended equipment upgrades for the Village to include in their future planning.

Table 2.1 - Traffic Signal Inventory Locations

Int. #	Intersection	Int. #	Intersection
1	Alpine Rd & Sandy Hollow Rd	24	Alpine Rd & East Riverside Blvd
2	Alpine Rd & American Rd	25	Alpine Rd & Valli Produce Ent
3	Alpine Rd & Manchester Dr	26	Alpine Rd & Windsor Rd
4	Alpine Rd & Harrison Av	27	Alpine Rd & Maple Av
5	Alpine Rd & Beach St	28	Alpine Rd & Harlem Rd
6	Alpine Rd & Florida Dr/Cleveland Av	29	Alpine Rd & Schnucks Ent
7*	Alpine Rd & Louisiana Rd	30	Alpine Rd & Roosevelt Rd
8	Alpine Rd & Broadway/Newburg Rd	31	Alpine Rd & Gladys Dr/Huskie Cir
9	Alpine Rd & Center Ter	32	Alpine Rd & Rose St
10	Alpine Rd & Rockford Career College Ent	33	Alpine Rd & IL 173/West Lane Rd
11	Alpine Rd & Larson Av	34	Manchester Dr & Harrison Av
12	Alpine Rd & East State St (US 20)	35	Holmes St & Harrison Av
13	Alpine Rd & Turner St/Morsay Dr	36	Parkside Dr & Broadway
14	Alpine Rd & Rural St	37	Quentin Rd & Newburg Rd
15	Alpine Rd & Guilford Rd/Skyline Dr	38	Parkside Dr & Charles St
16	Alpine Rd & Brendenwood Rd/Guilford Rd	39	Lynmar Court & E State St
17	Alpine Rd & Highcrest Rd	40	Dempster Rd & E State St
18	Alpine Rd & Highcrest Ctr/Edgebrook Ent	41	Forest Hills Rd & E Riverside Blvd
19	Alpine Rd & Spring Creek Rd	42	Forest Hills Rd & Windsor Rd
20	Alpine Rd & Pepper Dr	34	Schnucks Ent & Harlem Rd
21	Alpine Rd & Garden Ln/High Point Dr	44	N 2nd St & IL Route 173
22	Alpine Rd & Innsbruck Dr	45	Orlando St & IL Route 173
23	Alpine Rd & Siseman Rd	46	Continental Dr & IL Route 173

*Unsignalized intersection

A detailed inventory table is included in the Appendix to this report. A summary of the existing equipment is discussed in the following sections.

2.1 Traffic Signal Cabinet

All the traffic signal cabinets in the inventory are NEMA style cabinets. A breakdown of the cabinet types is shown in **Table 2.2** below.

Table 2.2 - Traffic Signal Cabinet Type

CABINET TYPE	COUNT
NEMA TS1	39
NEMA TS2 Type 1	7

Most of the traffic signal cabinets are NEMA TS1. Iteris recommends upgrading the NEMA TS1 cabinets to a TS2 Type 1 or to ATC. TS1 is an outdated standard that requires maintenance contractors to stock parts that are becoming more difficult to find and increasing in price. In addition, troubleshooting TS1 cabinets is more difficult and time consuming than TS2 and ATC cabinets. Further, given that the age of these cabinets is approaching 30+ years, it is likely that equipment malfunctions will become more prevalent, as the components within are reaching the end of their design lives. ATC is the most recent cabinet standard. Where TS1 cabinets are replaced, it may be worth considering skipping TS2 and adopting ATC, though the change is more dramatic.

2.2 Traffic Signal Controller

All the traffic signal controllers in the project corridor are Siemens brand. A variety of models were identified as shown in **Table 2.3** below.

Table 2.3 - Traffic Signal Controller Type

CONTROLLER TYPE	COUNT
Siemens M03	2
Siemens M10	6
Siemens M40	17
Siemens M50	13
Siemens M60	8

Iteris recommends upgrading all M03, M10, and M40 controllers. These controllers are aged technology and are no longer supported by Siemens. These controllers are about 40 years old and well past their design life. The M50 controllers are approaching 20 years of age. There have been significant advancements in technology and features included in the newer ATC controllers. Upgrading to ATC controllers will be required if a plan to have a centralized traffic signal management system in the future. Current ATC controllers on IDOT's approved list are Econolite Cobalt and Yunex (Siemens) M60. Planned replacement of these controllers will provide for smooth transition to the new equipment, rather than dealing with temporary equipment while waiting for new parts to come in under an emergency order.

2.3 Battery Backup Systems

The project corridor has eleven traffic signals with battery backup systems (BBS) installed, as listed below.

- Alpine Rd & Windsor Rd
- Alpine Rd & Maple Av
- Alpine Rd & Harlem Rd
- Alpine Rd & Schnucks Ent
- Alpine Rd & Gladys Dr/Huskie Cir
- Alpine Rd & Rose St
- Alpine Rd & IL 173
- IL 173 & N 2nd St
- IL 173 & Orlando St
- IL 173 & Continental Dri
- IL 173 & Kimber Dr

Iteris recommends installing BBS at all signalized intersections without one. BBS provides power to a traffic signal cabinet that has lost utility power. The signals can run in normal operation for a time and then flash all-red until power is restored or the batteries are exhausted. This is an important piece of safety equipment to significantly reduce or eliminate the instances of a dark intersection, which causes confusion for drivers and increases the crash risk at the intersection.

2.4 Emergency Vehicle Preemption

Most study intersections in the corridor have Emergency Vehicle Preemption (EVP). All EVP units installed are Tomar products. There are no recommended upgrades to the EVP equipment. Signals currently without EVP are:

- Alpine Rd & American Rd
- Alpine Rd & Manchester Dr
- Alpine Rd & Turner St/Morsay Dr
- Alpine Rd & Garden Ln/High Point Dr
- Alpine Rd & Innsbruck Dr
- Alpine Rd & Siseman Rd
- Alpine Rd & Roosevelt Rd
- Manchester Dr & Harrison Av
- Quentin Rd & Newburg Rd
- Forest Hills Rd & Windsor Rd
- Schnucks Ent & Harlem Rd

2.5 Vehicle Detection Systems

All study intersections are equipped with detectors, which provide actuation for vehicles on all approaches. There is a mix of inductive loops and video detection. A breakdown of the existing detection types is shown in **Table 2.4**. At the time of field inventory and observations, most detectors were confirmed to be operating well. Iteris staff were unable to confirm detection at Guilford Road/Skyline Drive due to a frozen controller screen.

Table 2.4 - Vehicle Detection Type

DETECTION TYPE	COUNT
Inductive Loops	24
Iteris Vantage Edge 2	13
Iteris Vantage Next	4
Iteris Vantage Plus	1
Odetics Vantage Plus	3
ITS Plus	1

Video detection adds flexibility to detection layouts and the ability to collect additional metrics when compared to loops. It is recommended that loop detectors be replaced with video detection. If the Cities desire to use Signal Performance Measures (SPM) in the future, video detection will make the setup process easier and more affordable than using loops.

2.6 Pedestrian Signal Heads

Approximately half of the study intersections have signalized pedestrian crossings, and most signalized crossings have countdown pedestrian signal heads. There are three non-countdown pedestrian heads at Alpine Road and Highcrest Road. The Manual on Uniform Traffic Control Devices (MUTCD) requires that all pedestrian signal heads display a countdown of the pedestrian clearance interval. This is also the current IDOT standard. Iteris recommends upgrading non-countdown pedestrian signal heads to new countdown heads at this intersection.

2.7 Pedestrian Pushbuttons

Currently the MUTCD requires that all pushbuttons be “latching”, which displays a confirmation LED to let the pedestrian know the button accepted the call. However, the new Public Right-of-Way Accessibility Guidelines (PROWAG) require that all pedestrian pushbuttons be APS buttons. IDOT has updated its standard to use APS buttons at all signalized crossings and plans to upgrade old pushbuttons to APS buttons through upcoming traffic signal projects, roadway projects, resurfacing projects, and permit projects. The inventory found a mix of latching and non-latching pedestrian pushbuttons.

A list of all locations that do not have APS pushbuttons is as follows:

No Pushbuttons:

- Manchester Dr & Harrison Av
- Alpine Rd & Highcrest Ctr/Edgebrook Ent (East and west leg crossing)

Non-Latching Pushbuttons:

- | | |
|---|------------------------------------|
| • Alpine Rd & Brendenwood Rd/Guilford Rd | • Quentin Rd & Newburg Rd |
| • Alpine Rd & Highcrest Rd | • Dempster Rd & US 20 - E State St |
| • Alpine Rd & Highcrest Ctr/Edgebrook Ent | |
| • Alpine Rd & Pepper Dr | |

Latching Pushbuttons:

- | | |
|---|------------------------------------|
| • Alpine Rd & Beach St | • Alpine Rd & Windsor Rd |
| • Alpine Rd & Florida Dr/Cleveland Av | • Alpine Rd & Maple Av |
| • Alpine Rd & Larson Av | • Alpine Rd & Harlem Rd |
| • Alpine Rd & Turner St/Morsay Dr | • Alpine Rd & Schnucks Ent |
| • Alpine Rd & Rural St | • Alpine Rd & Roosevelt Rd |
| • Alpine Rd & Brendenwood Rd/Guilford Rd | • Alpine Rd & Gladys Dr/Huskie Cir |
| • Alpine Rd & Highcrest Rd | • Holmes St & Harrison Av |
| • Alpine Rd & Highcrest Ctr/Edgebrook Ent | • Parkside Dr & Charles St |
| • Alpine Rd & Pepper Dr | • Lynmar Ct & US 20 – E State St |
| • Alpine Rd & Valli Produce Ent | |

Iteris recommends upgrading all non-APS buttons to APS. Intersections with no pushbuttons and with non-latching buttons should be prioritized.

2.8 Field Equipment Damage and Additional Comments

While in the field taking inventory, Iteris staff noted any damaged or malfunctioning traffic signal related items, as well as any information pertaining to the safety of road users and the operation of the intersection. This is for informational purposes only.



Beach St – Southeast Corner

Alpine Rd & Beach Street

At Beach Street, a signaled pedestrian crossing is provided on the south of the intersection. The crossing does not provide sidewalk connections, ADA ramps, or a visible crosswalk for pedestrian safety.



Highcrest Ctr/Edgebrook Ent Signal Pole

Alpine Rd & Highcrest Ctr/Edgebrook Ent

At Alpine Rd & Highcrest Ctr/Edgebrook Ent, the signal pole located at the southwest corner is damaged.



Innsbruck Dr Cabinet

Alpine Rd & Innsbruck Dr

At Innsbruck Dr, the cabinet exterior's rear side is damaged.



Eastbound Rose St Traffic Signal

Alpine Rd & Rose St

At Rose St, as eastbound three-section signal head is dark.

3 SIGNAL COORDINATION AND TIMING STUDY

With a detailed inventory and existing conditions, Iteris developed optimized signal timings along Alpine Road from Sandy Hollow Road to IL 173/West Lane Road, and on adjacent signals within a third of a mile of Alpine Road.

3.1 System Operation

Using the traffic counts collected earlier in this project, Iteris developed a Synchro network to model the existing conditions. The existing conditions models were the basis of the optimized signal timing plans included in this report. The scope of work for this project included developing weekday AM, Midday/Off-peak, and PM plans.

Iteris created optimized timing plans for each period with the basic timing parameters included in the existing conditions. Iteris used the guidelines set forth in the latest Manual on Uniform Traffic Control Devices, ITE Signal Timing Manual, and current agency practices and preferences.

Determining cycle lengths for a coordinated system is a balance. Longer cycle lengths can marginally increase capacity but possibly accommodate all pedestrian timing. Shorter cycle lengths can reduce delays but will likely require a suspension of coordination during a pedestrian call to accommodate pedestrians crossing safely.

Multiple cycle lengths were studied for this project ranging from 90 to 150 seconds for each peak period based on the traffic volumes. Upon completion of the Synchro analyses, the cycle lengths for the weekday peaks were: **130 seconds for the AM, 110 seconds for the Midday/Off-Peak, and 130 seconds for the PM**. The system runs free overnight. The proposed cycle lengths are shown in Table 3.1.

Table 3.1 – Proposed Cycle Lengths: Alpine Road

PROPOSED CYCLE LENGTHS			
AM PEAK C/L	MD/OFF-PEAK C/L	PM PEAK C/L	OVERNIGHT C/L
130 sec	110 sec	130 sec	Free

In addition to cycle lengths, Iteris optimized splits and offsets along the project corridor. Synchro was used to optimize the splits to ensure each movement would receive sufficient green time, with low likelihood of waiting through multiple red intervals. The synchro reports are included in Appendix.

3.2 Intersection Operation

Iteris analyzed the study intersections for the weekday peak hours and Saturday peak hour under the optimized signal timing plans using Synchro 11 capacity analysis software. The proposed timing plans treat the entire project corridor as one continuous system, despite the intersection spacing and overall corridor length. There are segments where it could be broken into smaller systems, such as at Spring Creek Road where the signals to the north and south are approximately three-quarters of a mile, making a natural break in the system. However, Iteris found good progression

could be made along the entire corridor without significant undue delays at individual intersections.

The Synchro model for the proposed weekday peak hours shows most intersections operating with LOS D or better. During the AM peak hours, Spring Creek Road experiences longer delays at LOS E.

3.2.1 Alpine Road and Sandy Hollow Road

During the AM peak period, the eastbound approach operates at LOS E while the westbound approach operates at LOS D. Under existing conditions, the westbound left turn in the AM Peak is near capacity with a v/c ratio of 0.97 and a projected queue length of 242 feet. With optimized signal timing plans, the westbound left turn has a v/c ratio of 0.75 and its queue length projected at 199 feet.

During the PM peak, east and westbound approaches are shown to operate at LOS E. The v/c ratio of the westbound left-turning movement is reduced from 1.02 to 0.87. The projected queue length is also reduced from a building queue of at least 532 feet to 478 feet. At 478 feet, the westbound left turn queue is anticipated to spill back to Lonergan Drive. As mentioned under existing conditions, traffic counts show approximately 350 vehicles turning left in the PM peak. It is recommended that the westbound approach provide dual left turn lanes to accommodate the PM peak volumes.

3.2.2 Alpine Road and Spring Creek Road

Under existing conditions, Alpine Road and Spring Creek Road operate at LOS E during the AM and PM peak hours. In the AM peak hour, the eastbound and northbound approaches operate at LOS F, with v/c ratios of 1.14 and 1.11, respectively. In the PM peak hour, the northbound approach operates at LOS F and is also over capacity with a v/c ratio of 1.20.

Under optimized timings, the AM peak eastbound and northbound approaches continue to operate at LOS F with v/c ratios of 1.08 and 1.05, respectively. The 95th percentile queue for the eastbound approach is 582 feet and 615 feet for the northbound approach. Vehicles are expected to be double-cycled, and the queues may be longer. PM peak conditions improve under optimized timings, with the v/c ratio of the northbound approach reduced from 1.20 to 0.93. The queue length is projected to decrease from 667 feet to 468 feet.

Northbound right turning volumes in the AM exceed the threshold of 150 vehicles for a right-turn lane warrant. A dedicated right-turn lane for the northbound direction is recommended, along with signal improvements to allow northbound right turn overlap, like the south and westbound approaches.

As previously mentioned, Spring Creek Road is located approximately three-quarter mile away from the adjacent signals on Alpine Road and can be a natural break in the corridor. Agencies may consider running free operations at this intersection to allow flexibility between each phase split.

3.2.3 Alpine Road at East Riverside Boulevard and East State Street

Further analysis of the optimized timing shows improvements at East Riverside Boulevard and at East State Street. During the PM peak, the v/c ratio of the westbound left turn at East Riverside is reduced from 1.11 to 0.86. The 95th percentile queue is projected to be 291 feet, exceeding the available storage space of 175 feet and likely to temporarily spill over to the adjacent lane due to a raised median.

Similarly, delays to the northbound and southbound movements at Alpine Road and East State Street are reduced under the proposed PM timings. While left turn queues exceed the available storage space, vehicles can queue on a striped median.

3.3 Measures of Effectiveness

Travel time and delay studies are typically used to determine conditions along the corridor before and after implementation of optimized timings. For this study, Synchro 11 reports are used to quantify improvements to the network's performance. **Table 3.2** below provides a comparison of delays, stops, fuel consumption, and emissions for all vehicles on Alpine Road within the study area.

Table 0.2 – Alpine Road Measures of Effectiveness Comparison

	Study	Travel Time (hr)	Stops (#)	Fuel (gal)	CO (kg)	NOx (kg)	VOC (kg)
AM PEAK	Existing	649	22,967	1,023	71.54	13.92	16.58
	Proposed	606	22,105	983	68.74	13.37	15.93
	Change	↓43	↓862	↓40	↓2.8	↓0.55	↓0.65
		↓7%	↓4%	↓4%	↓4%	↓4%	↓4%
MD PEAK	Existing	540	20,147	881	61.60	11.98	14.28
	Proposed	481	15,989	797	55.74	10.85	12.92
	Change	↓59	↓4,158	↓84	↓5.86	↓1.13	↓1.36
		↓11%	↓21%	↓10%	↓10%	↓9%	↓10%
PM PEAK	Existing	816	30,250	1,283	89.67	17.45	20.78
	Proposed	725	25,036	1,162	81.19	15.80	18.82
	Change	↓91	↓5,214	↓121	↓8.48	↓1.65	↓1.96
		↓11%	↓17%	↓9%	↓9%	↓9%	↓9%

The results from synchro's Measures of Effectiveness (MOE) reports showed positive results during all study periods. Detailed MOE reports, included in the Appendix, show a count of vehicles arriving when the signal turns yellow. Vehicles in the dilemma zone are more likely to have accidents such as rear-end collisions or right-angle accidents involving vehicles or pedestrians. A decrease in this number is a safety improvement for the corridor achieved through signal coordination and timing. Further improvements may occur if lead-lag configurations at intersections with protected only left turns are considered at different times of the day to improve the flow of traffic.

3.4 Time-Of-Day Schedule

Under the proposed conditions, all study intersections are recommended to run coordination by time-of-day (TOD). After a review of the count data and field observations, Iteris determined the Time-of-Day plan shown on **Table 3.3** to be appropriate.

Table 0.3 - Proposed Weekday Time-of-Day Schedule

COORDINATION PLAN PERIODS			
AM PLAN (130s)	MD PLAN (110s)	PM PLAN (130s)	OFF-PEAK PLAN (110s)
6:00 AM – 9:00 AM	9:00 AM – 2:30 PM	2:30 PM – 6:00 PM	6:00 PM – 8:00 PM

When the signal timing plans change from one cycle length to another, the controller’s transition algorithm may shorten or lengthen the cycle lengths and may also change the length of green time a phase is provided. This transition period typically takes one to five cycles. The larger the difference between cycle lengths, the longer the transition will take. Transition periods should be observed after implementation to ensure that the signals are “in step” and ready for the oncoming change in traffic.

Figure 3 on the following pages show the proposed weekday day plan schedules.

Figure 3 - Proposed Day Plan Schedule

PROPOSED TOD SCHEDULES		1 am	2 am	3 am	4 am	5 am	6 am	7 am	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm	4 pm	5 pm	6 pm	7 pm	8 pm	9 pm	10 pm	11 pm	12 am
WEEKDAYS																									
Alpine Road																									
1	Sandy Hollow Road																								
2	American Road																								
3	Manchester Drive																								
4	Harrison Drive																								
5	Beach Street																								
6	Florida Drive/Cleveland Avenue																								
7	Louisiana Road																								
8	Broadway/Newburg Road																								
9	Center Terrace																								
10	Rockford Career College																								
11	Larson Avenue																								
12	US 20 - E State Street																								
13	Turner Street/Morsay Drive																								
14	Rural Street																								
15	Guilford Road/Skyline Drive*																								
16	Brendenwood Road/Guilford Road																								
17	Highcrest Road																								
18	Highcrest Center/Edgebrook Entrance																								
19	Spring Creek Road																								
20	Pepper Drive																								
21	Garden Lane/High Point Drive																								
22	Innsbruck Drive																								
23	Siseman Road																								
24	E Riverside Boulevard																								
25	Valli Produce Entrance																								
26	Windsor Road																								
27	Maple Avenue																								
28	Harlem Road																								
29	Schnucks Entrance																								
30	Roosevelt Road																								
31	Gladys Drive/Huskie Circle																								
32	Rose Street																								
33	IL 173 - West Lane Road																								

* Existing signal controller screen frozen

Figure 3 - Proposed Day Plan Schedule (cont.)

PROPOSED TOD SCHEDULES		1 am	2 am	3 am	4 am	5 am	6 am	7 am	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm	4 pm	5 pm	6 pm	7 pm	8 pm	9 pm	10 pm	11 pm	12 am
WEEKDAYS																									
Harrison Avenue																									
34	Manchester Drive							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
35	Holmes Street							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
Broadway/Newburg Road																									
36	Parkside Drive/Eastmoreland Avenue							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
37	Quentin Road							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
Parkside Drive																									
38	Charles Street							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
US 20 - E State Street																									
39	Lynmar Court							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
40	Dempster Road/Dawn Avenue							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
Forest Hills Road																									
41	E Riverside Boulevard							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
42	Windsor Road							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
Harlem Road																									
43	Schnucks Entrance							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
IL 173 - West Lane Road																									
44	IL 251/N 2nd Street							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
45	Orlando Street							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
46	Continental Drive							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE
47	Kimber Drive							133 [130]	6:00 - 9:00			111 [110]	9:00 - 14:30			122 [130]	14:30 - 18:00		111 [110]	18:00 - 20:00					FREE

4 HARDWARE AND SOFTWARE RECOMMENDATIONS

The following section provides guidance on equipment improvements to the study intersections that will improve traffic flow, safety, and maintenance.

4.1 Traffic Signal Cabinet

As mentioned in the Traffic Signal Inventory section, most traffic signal cabinets on the study corridor are NEMA style cabinets. Iteris recommends upgrading NEMA TS1 cabinets to a TS2 Type 1 or to ATC. TS1 is an outdated standard that requires maintenance contractors to stock parts that are becoming more difficult to find and increasing in price. ATC cabinets are the latest cabinet standard. Given the age of existing cabinets in the study corridor, it may be worth skipping TS2 and adopting ATC.

Iteris recommends that the replacement of NEMA TS1 cabinets be prioritized over the existing NEMA TS2 Type 1 cabinets. TS1 cabinets are located at the following locations:

- | | |
|--|---|
| 1. Alpine Road & American Road | 21. Alpine Road & Maple Avenue |
| 2. Alpine Road & Manchester Drive | 22. Alpine Road & Harlem Road |
| 3. Alpine Road & Harrison Avenue | 23. Alpine Road & Schnucks Entrance |
| 4. Alpine Road & Broadway/Newburg Road | 24. Alpine Road & Roosevelt Road |
| 5. Alpine Road & Center Terrace | 25. Alpine Road & Rose Street |
| 6. Alpine Road & Rockford Career College | 26. Alpine Road & IL 173/West Lane Road |
| 7. Alpine Road & Larson Avenue | 27. Manchester Drive & Harrison Avenue |
| 8. Alpine Road & East State Street (US 20) | 28. Holmes Street & Harrison Avenue |
| 9. Alpine Road & Rural Street | 29. Parkside Drive & Broadway |
| 10. Alpine Road & Guilford Road/Skyline Drive | 30. Quentin Road & Newburg Road |
| 11. Alpine Road & Brendenwood/Guilford Road | 31. Lynmar Court & E State Street |
| 12. Alpine Road & Highcrest Road | 32. Dempster Road & E State Street |
| 13. Alpine Road & Highcrest Center | 33. Forest Hills Road & E Riverside Boulevard |
| 14. Alpine Road & Spring Creek Road | 34. Forest Hills Road & Windsor Road |
| 15. Alpine Road & Garden Lane/High Point Drive | 35. Schnucks Entrance & Harlem Road |
| 16. Alpine Road & Innsbruck Drive | 36. N 2nd Street & IL Route 173 |
| 17. Alpine Road & Siseman Road | 37. Orlando Street & IL Route 173 |
| 18. Alpine Road & E Riverside Boulevard | 38. Continental Drive & IL Route 173 |
| 19. Alpine Road & Valli Produce Entrance | 39. Kimber Drive & IL Route 173 |
| 20. Alpine Road & Windsor Road | |

4.2 Traffic Signal Controller

Iteris recommends upgrading all Siemens M50 controllers and older to ATC controllers. ATC controllers are designed to provide advanced functionalities and features to improve efficiency, safety, and traffic management. Such controllers will be required if the jurisdictions plan to have a centralized traffic signal management system in the future. Current ATC controllers on IDOT's approved list are Econolite Cobalt and Yunex (Siemens) M60.

Replacement of traffic signal controllers should begin with Siemens M03 followed by M10 and M40. These signals should be prioritized above Siemens M50 controllers due to their age.

Siemens M03 Controller Locations:

1. Alpine Road & Guilford Road/Skyline Drive
2. Forest Hills Road & E Riverside Boulevard

Siemens M10 Controller Locations:

1. Alpine Road & Spring Creek Road
2. Alpine Road & Innsbruck Drive
3. Alpine Road & Sideman Road
4. Alpine Road & Roosevelt Road
5. Manchester Drive & Harrison Avenue
6. Quentin Road & Newburg Road

Siemens M40 Controller Locations:

- | | |
|--|--|
| 1. Alpine Road & American Road | 10. Alpine Road & Highcrest Road |
| 2. Alpine Road & Manchester Drive | 11. Alpine Road & Highcrest Center |
| 3. Alpine Road & Harrison Avenue | 12. Alpine Road & Garden Lane/High Point Drive |
| 4. Alpine Road & Broadway/Newburg Road | 13. Alpine Road & E Riverside Boulevard |
| 5. Alpine Road & Center Terrace | 14. Alpine Road & Valli Produce Entrance |
| 6. Alpine Road & Rockford Career College | 15. Alpine Road & Rose Street |
| 7. Alpine Road & Larson Avenue | 16. Parkside Drive & Broadway |
| 8. Alpine Road & Rural Street | 17. Schnucks Entrance & Harlem Road |
| 9. Alpine Road & Brendenwood/Guilford Road | |

Regardless of any plans to move to a centralized system, planning these replacements will enable the jurisdictions to proactively upgrade the controllers rather than waiting for the equipment to fail at some inopportune time, such as the middle of the night on a holiday weekend. Planned replacement will allow a smooth transition to the new equipment, rather than dealing with temporary equipment while waiting for new parts to come in under an emergency order.

2.9 Battery Backup Systems

The installation of battery backup systems (BBS) along the corridor is a priority for the maintenance of safe operations. Dark signals present unsafe situations to motorists, pedestrians, and cyclists, especially during the nighttime. The current practice in responding to a dark intersection is to have a crew respond and place portable stop signs on all approaches. This practice poses a safety risk for all users of the road when an intersection is dark, and it also poses a safety risk for the crew in the roadway with a dark signal. The use of battery backup systems nearly eliminates this



unsafe situation.

The installation efforts can be as small or large as funding allows as this is individual to the intersection. However, Iteris recommends beginning at busier intersections as listed below.

- | | |
|--|---|
| 1. Alpine Road & Sandy Hollow Road | 7. Alpine Road & Windsor Road |
| 2. Alpine Road & Harrison Avenue | 8. Alpine Road & Harlem Road |
| 3. Alpine Road & Broadway/Newburg Road | 9. Alpine Road & IL 173/West Lane Road |
| 4. Alpine Road & East State Street | 10. Forest Hills Road & E Riverside Boulevard |
| 5. Alpine Road & Spring Creek Road | 11. N 2nd Street & IL Route 173 |
| 6. Alpine Road & Riverside Boulevard | |

4.3 Vehicle Detection Systems

The study corridor utilizes a mix of loops and video detection. There are currently 24 intersections utilizing loops to detect the presence of vehicles. Loops are relatively cost-effective to install and maintain. Loop detectors are installed in the roadway and often require minimal attention after installation. Frequent freeze-thaw cycles can damage loop detection as pavement moves. Repairing or adjusting loops may involve cutting into road surfaces, causing traffic disruptions and possible maintenance challenges.

Video detection, installed in 22 intersections, can provide more flexibility than loops since detection areas are “drawn” and can be programmed and reprogrammed. However, they can be negatively affected by weather and the presence of shadows throughout the day. Three intersections utilize Odetics Vantage Plus, which should be upgraded as funding becomes available due to the age of these systems.

If the jurisdictions desire to use Signal Performance Measures (SPM) in the future, video detection will make the setup process easier and more affordable than using loops.

4.4 Pedestrian Signal Heads and Pushbuttons

As mentioned in Section 2.6, most signalized pedestrian crossings have countdown pedestrian signal heads. Iteris recommends upgrading three (3) non-countdown pedestrian heads at Highcrest Road to comply with MUTCD and IDOT standards. Pedestrian signal heads and pushbuttons should be considered at Alpine Road and East State Street to accompany the existing crosswalk along the south leg of the intersection.

Effective September 7, 2023, the Public-Right-of-Way Accessibility Guidelines (PROWAG) require accessible pedestrian signals (APS) at all new and altered pedestrian signal heads installed at crosswalks. APS have audible and vibrotactile features so that pedestrians who are blind or have low vision will know when to cross a street. With this ruling, Iteris recommends the installation of APS pushbuttons with the installation of countdown pedestrian heads at Highcrest Road. Iteris also recommends other pedestrian push buttons in the study area be upgraded to APS. Intersections with no pushbuttons and with non-latching buttons should be prioritized.

4.5 Interconnect

Interconnect provides communication between individual signals and allows these signals to keep synchronized clocks. It is recommended to maintain synchronization between signals to avoid individual clocks from drifting over time, providing a consistent and reliable travel time through the project corridor.

Fiber optic cable communication provides a reliable and high-speed method of interconnecting signals and managing signal systems. It can transmit data over long distances without loss of signal quality, which may be important on a long corridor such as Alpine Road. The initial installation of fiber optic cables may be more expensive than other communication methods but is a preferred choice for communication infrastructure due to its reliability and ability to support increased data demands and future applications as traffic systems advance. The cost of the fiber optic cable and conduit are approximately \$40 per foot. As previously mentioned, many intersections in the study area were found to be interconnected, but approximately eight miles of Alpine Road were found to have no interconnect. Some intersections were found to have fiber terminal boxes without fiber connection. For an eight-mile span of Alpine Road, the cost adds up to approximately \$1.7 million not including efforts or costs related to prior coordination, design, or studies.

Radio frequency allows wireless connectivity between signals across a network by using radio waves to transmit data and may be a more cost-effective option than fiber optic cable. Intersections with radio frequency communication can often be remotely monitored or managed, allowing troubleshooting of issues without the need for on-site visits. Wireless radio would need to be installed at each intersection. The cost for a wireless radio is approximately \$3,500 each.

To reap the benefits of either of the above interconnect technologies, the agencies should implement a centralized traffic management system. Such a system provides a way to actively monitor the operation of the intersections on the system. Users can make changes to timing, check intersection and detection status, and perform troubleshooting tasks from the office. Issues can be found more quickly and addressed proactively, often before the driving public becomes aware and before something small turns into a big issue. Siemens does produce such software, but there are several other options that would work well with the area's Siemens controllers. The cost is estimated to be between \$50,000 to \$100,000.

A GPS clock can be used to synchronize the time in traffic signal equipment to ensure that devices are operating on the same precise time reference. Precise time synchronization is vital for coordinating signals efficiently and can help in maintenance and diagnostics by providing accurate timestamps in events and logs. In comparison to wireless radio and fiber optic, GPS clocks are easily attainable at about \$1,000 per unit. Iteris recommends having GPS clocks at the very least to keep the clocks synchronized for the optimized timings to function properly.

5 IMPLEMENTATION PHASES AND COSTS

Recommended improvements listed in the prior sections should be implemented over time as funding becomes available. Iteris recommends upgrading equipment for safety purposes first before upgrading equipment to benefit from new features.

5.1 Safety Improvements

IMPROVEMENT	COST
Battery Backup System	\$6,000
Countdown Pedestrian Head	\$650 per head
APS Pushbutton	\$1,000 per button

As previously mentioned, dark signals present unsafe conditions to all users of the road, and the installation of battery backup systems provides insurance for traffic equipment to function during power interruptions. There are currently 11 intersections with battery backup. At \$6,000 each, providing the remaining 35 intersections with BBS will cost approximately \$210,000.

Upgrading pedestrian crossing equipment improves the safety of the crossing as well as lowers the liability of the jurisdictions should an incident occur. When countdown heads are used the pedestrians have a visual indication of when they must be out of the intersection before crossing vehicles begin to move. This allows them to quicken their pace or remain on a refuge island if needed. Replacing three non-countdown pedestrian signal heads at Alpine Road and Highcrest Road totals approximately \$1,950.

Additionally, the use of APS buttons has shown to provide significant safety improvements for visually impaired pedestrians with its audible and vibrotactile features. The final PROWAG ruling requires that the entity making alterations to the intersection must assess whether the installation of APS is required. Prior to the final ruling, PROWAG guidelines indicated that these alterations include the replacement of a signal head, or the alteration of a signal controller and software. Consequently, the pedestrian pushbuttons at Alpine Road and Highcrest Road are recommended to be upgraded to APS buttons when countdown pedestrian signal heads are installed. This is projected to cost \$4,000 in addition to the \$1,950 estimated for the countdown signal heads at this intersection. As funding becomes available, the transformation of the remaining pushbuttons to APS to meet PROWAG and IDOT standards is estimated at an additional \$86,000.

At Alpine Road and High Crest Center/Edgebrook Entrance, the east and west leg provide countdown pedestrian signal heads, but without actuated push buttons. The “walk” signal automatically comes up when the northbound and southbound traffic receive a green indication. The addition of APS buttons at this intersection would be an additional cost of approximately \$4,000.

Furthermore, PROWAG states that altered facilities must be connected to a pedestrian circulation path so that pedestrians with disabilities can realize the benefits accessible with these guidelines. Consequently, it is recommended

that sidewalks be installed at the following intersections with existing pedestrian crossings:

1. Alpine Road & Beach Street
2. Alpine Road & Pepper Drive
3. Dempster Road & East State Street

Additionally, it is recommended that ramps at the following intersections be upgraded to meet ADA standards:

1. Alpine Road & Larson Avenue
2. Alpine Road & Highcrest Road
3. Alpine Road & Highcrest Center/Edgebrook Entrance
4. Alpine Road & Pepper Drive
5. Manchester Drive & Harrison Avenue
6. Quentin Road & Newburg Road
7. Dempster Road & East State Street

Intersections that currently provide crosswalks without pedestrian signal heads or pushbuttons are located at the following locations:

1. East State Street
2. Rural Street
3. Highcrest Road
4. Garden Lane

The total cost of providing BBS and APS pushbuttons in the study area is approximately \$305,950, not including work related to replacing pedestrian ramps or providing connections to a sidewalk.

5.2 Equipment Replacement

ITEM	COST
ATC Signal Controller	\$5,000
Video Vehicle Detection System	\$40,000
TS Cabinet	\$28,000

This set of upgrades is about replacing aged technology proactively instead of waiting for equipment failure. These upgrades should lower maintenance costs for the jurisdictions and provide the latest features to help efficiently move traffic through the corridor.

Most controllers in use within the study area are well beyond their designed life spans. Replacement of these older controllers should be prioritized over the other remaining components. Replacing controllers older than M50 in 25 intersections will cost approximately \$125,000. The replacement of M50 controllers found in 13 intersections will cost an additional \$65,000.

Similarly, TS1 is an outdated standard that requires maintenance contractors to stock parts that are becoming more difficult to find and increasing in price. The replacement of NEMA TS1 cabinets is estimated to cost \$1.1M. Replacing

the NEMA TS2 Type 1 cabinets will cost an additional \$196,000.

The total cost of upgrading the traffic signal cabinets and controllers is between \$1.25M and \$1.5M, depending on whether the M50s and NEMA TS2 Type 1 cabinets are upgraded or not.

5.3 Interconnect

ITEM	COST
Wireless Radio	\$3,500 each
Fiber Optic Cable	\$40/ft

For successful implementation, interconnect should be installed to allow communication between traffic signals. Without communication, individual clocks are expected to drift over time and the benefits of the corridor optimization will not be attained. Iteris recommends the above interconnect technologies, which can provide ways to actively monitor the intersections. Users can make changes to timing, check intersection and detection status, and perform troubleshooting tasks from the office.

Several signals in the study area are interconnected in closed loop systems. Signals on IL 173, connected by fiber, belong in one system that prioritizes east-west traffic movement on IL 173. Another system, also connected by fiber, is located along East State Street. Lastly, signals along Alpine Road from Sandy Hollow Road to Florida Drive/Cleveland Avenue form another system using radio signals. While the existing interconnected systems in the study area are either connected by fiber or by radio, it is possible for a system to operate with fiber interconnect and wireless radio at select locations.

There are currently 27 intersections without communication, some containing fiber terminal boxes without fiber connections. These intersections can be added to a new system, or an existing system can be expanded without a complete overhaul of existing infrastructure. While closed loop systems can provide signal coordination and timing within their network of signals, coordinating with other systems across a larger area may not be as efficient which can lead to congestion between different parts of the region.

5.4 Advanced Traffic Management System

An Advanced Traffic Management System (ATMS) is recommended as it would provide the agencies with a variety of benefits. An ATMS includes, at minimum, a central software package and communications infrastructure that would enable remote communication between the devices at the intersection and a central management center, such as a Traffic Management Center in an agency facility.

An ATMS software package would serve the need to keep the corridor interconnected and coordinated and add many other features, such as signal controller database management and real-time system status with alerting capabilities. Engineers and electricians would be able to proactively respond to issues before they become problems, whether a failed detector or an intersection in flash. A central record of controller databases can be maintained within the software and frequently checked against field databases to assure the integrity of the controller data. Most packages



include the ability to connect video feeds and dynamic message signs, among other components. Many are also moving to cloud-based systems, removing the need to own, maintain, and periodically replace centralized servers. Most also can manage a variety of access levels shared across multiple jurisdictions—ideal for a corridor such as Alpine Road which falls within such a variety of jurisdictions. Monitoring other IP-addressable equipment is possible, including Malfunction Monitoring Units and Uninterruptable Power Supplies. Many systems also have or will soon be able to collect and act on Automated Traffic Signal Performance Measures.

A cost is provided here as a range due to the variety of inputs that could affect the final cost, such as the degree to which fiber optic cable installation is needed, as well as the selection of the specific ATMS software. Network improvements that would include installing fiber optic cables along the entire corridor and a switch in each traffic signal cabinet on the corridor would cost about \$2.5M - \$3.0M. The ATMS software could cost between \$50,000 and \$200,000, depending on the brand selected, how the licensing is handled, and which optional features are chosen. At this early stage, the agencies could expect an ATMS installation to cost between \$2.7M and \$3.5M.

5.5 Improvements by Intersection

Should jurisdictions wish to make improvements along the corridor by intersection instead of by equipment, **Figure 4** in the following pages shows how estimated costs can vary. This table does not include estimates related to construction of sidewalks as previously mentioned, nor does it include estimates to provide communication between signals. A more detailed cost estimate table can be found in the Appendix.

Figure 4 – Cost Estimate by Intersection

LOCATION	RECOMMENDED IMPROVEMENTS						
	TRAFFIC SIGNAL CABINET	TRAFFIC SIGNAL CONTROLLER	BATTERY BACKUP SYSTEM	DETECTION SYSTEM	PEDESTRIAN SIGNAL HEADS	APS PUSHBUTTONS	TOTAL
ALPINE ROAD							
SANDY HOLLOW ROAD	◆		●	◆			\$\$\$
AMERICAN ROAD	◆	◆	●	◆			\$\$\$\$
MANCHESTER DRIVE	◆	◆	●	◆			\$\$\$\$
HARRISON AVENUE	◆	◆	●				\$\$
BEACH STREET	◆		●			●	\$\$
FLORIDA DRIVE/CLEVELAND AVENUE	◆		●			●	\$\$
BROADWAY/NEWBURG ROAD	◆	◆	●	◆			\$\$\$\$
CENTER TERRACE	◆	◆	●	◆			\$\$\$
ROCKFORD CAREER COLLEGE ENTRANCE	◆	◆	●	◆			\$\$\$\$
LARSON AVENUE	◆	◆	●	◆		●	\$\$\$\$
EAST STATE STREET (US BUSINESS 20)	◆		●				\$
TURNER STREET/MORSAY DRIVE	◆	◆	●	◆		●	\$\$\$\$
RURAL STREET	◆	◆	●	◆		●	\$\$\$\$
GUILFORD ROAD/SKYLINE DRIVE	◆	◆	●	◆			\$\$\$\$
BRENDENWOOD ROAD/GUILFORD ROAD	◆	◆	●	◆		●	\$\$\$\$
HIGHCREST ROAD	◆	◆	●	◆	●	●	\$\$\$\$
HIGHCREST CENTER/EDGEBROOK ENTRANCE	◆	◆	●	◆		●	\$\$\$\$
SPRING CREEK ROAD	◆	◆	●	◆			\$\$\$\$
PEPPER DRIVE	◆	◆	●	◆		●	\$\$\$\$
GARDEN LANE/HIGH POINT DRIVE	◆	◆	●	◆			\$\$\$\$
INNSBRUCK DRIVE	◆	◆	●	◆			\$\$\$\$
SISEMAN ROAD	◆	◆	●	◆			\$\$\$\$
E RIVERSIDE BOULEVARD	◆	◆	●	◆			\$\$\$\$
VALLI PRODUCE ENTRANCE	◆	◆	●	◆		●	\$\$\$\$
WINDSOR ROAD	◆	◆				●	\$\$
MAPLE AVENUE	◆	◆				●	\$\$
HARLEM ROAD	◆	◆				●	\$\$
SCHNUCKS ENTRANCE	◆	◆				●	\$\$
ROOSEVELT ROAD	◆	◆	●			●	\$\$
GLADYS DRIVE/HUSKIE CIRCLE	◆					●	\$
ROSE STREET	◆	◆					\$
IL 173/WEST LANE ROAD	◆	◆					\$

Key:

- SAFETY IMPROVEMENT (PRIORITY)
- ◆ EQUIPMENT UPGRADE

\$ LESS THAN \$35,000

\$\$ \$35,000 < \$50,000

\$\$\$ \$50,000 < \$75,000

\$\$\$\$ GREATER THAN \$75,000

Figure 4 – Cost Estimate by Intersection (cont.)

LOCATION	RECOMMENDED IMPROVEMENTS						
	TRAFFIC SIGNAL CABINET	TRAFFIC SIGNAL CONTROLLER	BATTERY BACKUP SYSTEM	DETECTION SYSTEM	PEDESTRIAN SIGNAL HEADS	APS PUSHBUTTONS	TOTAL
HARRISON AVENUE							
MANCHESTER DRIVE	◆	◆	●	◆		●	\$\$\$\$
HOLMES STREET	◆	◆	●			●	\$\$
BROADWAY/NEWBURGH ROAD							
PARKSIDE DRIVE/EASTMORELAND AVENUE	◆	◆	●	◆			\$\$\$\$
QUENTIN ROAD	◆	◆	●	◆		●	\$\$\$\$
PARKSIDE DRIVE							
CHARLES STREET	◆		●			●	\$\$
US 20 – E STATE STREET							
LYNMAR COURT	◆	◆	●	◆		●	\$\$\$\$
DEMPSTER ROAD/DAWN AVENUE	◆		●			●	\$\$
FOREST HILLS ROAD							
E RIVERSIDE BOULEVARD	◆	◆	●	◆			\$\$\$\$
WINDSOR ROAD	◆	◆	●	◆			\$\$\$\$
HARLEM ROAD							
SCHNUCKS ENTRANCE	◆	◆	●	◆			\$\$\$\$
IL 173 – WEST LANE ROAD							
IL 251 – N 2 ND STREET	◆	◆					\$
ORLANDO STREET	◆	◆					\$
CONTINENTAL DRIVE	◆	◆					\$
KIMBER DRIVE	◆	◆					\$

KEY:

- SAFETY IMPROVEMENT (PRIORITY)
- ◆ EQUIPMENT UPGRADE

\$ LESS THAN \$35,000

\$\$ \$35,000 < \$50,000

\$\$\$ \$50,000 < \$75,000

\$\$\$\$ GREATER THAN \$75,000

LOCATION	RECOMMENDED IMPROVEMENTS						TOTAL
	◆ TRAFFIC SIGNAL CABINET	◆ TRAFFIC SIGNAL CONTROLLER	● BATTERY BACKUP SYSTEM	◆ DETECTION SYSTEM	● PEDESTRIAN SIGNAL HEADS	● APS PUSHBUTTONS	
ALPINE ROAD							
SANDY HOLLOW ROAD	\$ 28,000	-	\$ 6,000	\$ 40,000	-	-	\$ 74,000
AMERICAN ROAD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
MANCHESTER DRIVE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
HARRISON AVENUE	\$ 28,000	\$ 5,000	\$ 6,000	-	-	-	\$ 39,000
BEACH STREET	\$ 28,000	-	\$ 6,000	-	-	\$2,000	\$ 36,000
FLORIDA DRIVE/CLEVELAND AVENUE	\$ 28,000	-	\$ 6,000	-	-	\$2,000	\$ 36,000
BROADWAY/NEWBURG ROAD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
CENTER TERRACE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
ROCKFORD CAREER COLLEGE ENTRANCE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
LARSON AVENUE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$2,000	\$ 81,000
EAST STATE STREET (US BUSINESS 20)	\$ 28,000	-	\$ 6,000	-	-	-	\$ 34,000
TURNER STREET/MORSAY DRIVE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$2,000	\$ 81,000
RURAL STREET	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$2,000	\$ 81,000
GUILFORD ROAD/SKYLINE DRIVE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
BRENDENWOOD ROAD/GUILFORD ROAD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$8,000	\$ 87,000
HIGHCREST ROAD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	\$1,950	\$4,000	\$ 84,950
HIGHCREST CENTER/EDGEBROOK ENTRANCE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$8,000	\$ 87,000
SPRING CREEK ROAD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
PEPPER DRIVE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$4,000	\$ 83,000
GARDEN LANE/HIGH POINT DRIVE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
INNSBRUCK DRIVE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
SISEMAN ROAD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
E RIVERSIDE BOULEVARD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
VALLI PRODUCE ENTRANCE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$6,000	\$ 85,000
WINDSOR ROAD	\$ 28,000	\$ 5,000	-	-	-	\$12,000	\$ 45,000
MAPLE AVENUE	\$ 28,000	\$ 5,000	-	-	-	\$4,000	\$ 37,000
HARLEM ROAD	\$ 28,000	\$ 5,000	-	-	-	\$4,000	\$ 37,000
SCHNUCKS ENTRANCE	\$ 28,000	\$ 5,000	-	-	-	\$4,000	\$ 37,000
ROOSEVELT ROAD	\$ 28,000	\$ 5,000	\$ 6,000	-	-	\$2,000	\$ 41,000
GLADYS DRIVE/HUSKIE CIRCLE	\$ 28,000	-	-	-	-	\$4,000	\$ 32,000
ROSE STREET	\$ 28,000	\$ 5,000	-	-	-	-	\$ 33,000
IL 173/WEST LANE ROAD	\$ 28,000	\$ 5,000	-	-	-	-	\$ 33,000
ALPINE ROAD SUBTOTAL	\$896,000	\$135,000	\$150,000	\$800,000	\$1,950	\$70,000	\$2.05M
ADVANCED TRAFFIC MANAGEMENT SYSTEM COST							\$50,000 - \$200,000
ALPINE ROAD TOTAL COST							\$2.1M - \$2.3M

LOCATION	RECOMMENDED IMPROVEMENTS						
	◆ TRAFFIC SIGNAL CABINET	◆ TRAFFIC SIGNAL CONTROLLER	● BATTERY BACKUP SYSTEM	◆ DETECTION SYSTEM	● PEDESTRIAN SIGNAL HEADS	● APS PUSHBUTTONS	TOTAL
HARRISON AVENUE							
MANCHESTER DRIVE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$4,000	\$ 83,000
HOLMES STREET	\$ 28,000	\$ 5,000	\$ 6,000	-	-	\$4,000	\$ 43,000
BROADWAY/NEWBURGH ROAD							
PARKSIDE DRIVE/EASTMORELAND AVENUE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
QUENTIN ROAD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$2,000	\$ 81,000
PARKSIDE DRIVE							
CHARLES STREET	\$ 28,000	-	\$ 6,000	-	-	\$10,000	\$ 44,000
US 20 – E STATE STREET							
LYNMAR COURT	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	\$2,000	\$ 81,000
DEMPSTER ROAD/DAWN AVENUE	\$ 28,000	-	\$ 6,000	-	-	\$2,000	\$ 36,000
FOREST HILLS ROAD							
E RIVERSIDE BOULEVARD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
WINDSOR ROAD	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
HARLEM ROAD							
SCHNUCKS ENTRANCE	\$ 28,000	\$ 5,000	\$ 6,000	\$ 40,000	-	-	\$ 79,000
IL 173 – WEST LANE ROAD							
IL 251 – N 2 ND STREET	\$ 28,000	\$ 5,000	-	-	-	-	\$ 33,000
ORLANDO STREET	\$ 28,000	\$ 5,000	-	-	-	-	\$ 33,000
CONTINENTAL DRIVE	\$ 28,000	\$ 5,000	-	-	-	-	\$ 33,000
KIMBER DRIVE	\$ 28,000	\$ 5,000	-	-	-	-	\$ 33,000
SUBTOTAL	\$392,000	\$60,000	\$60,000	\$280,000	-	\$24,000	\$816,000
SIDE STREET TOTAL COST							\$816,000



MPO Technical Committee Meeting

Meeting Minutes

Wednesday, June 18, 2025 10:00 am

Region 1 Planning Council, 127 N. Wyman St. Suite 100, Rockford, Illinois 61101

1) Call to Order

The meeting was called to order by Tim Verbeke at 10:00 am.

2) Roll Call

Members Present: Justin Krohn, Boone County Highway Department; Josh Sage, Boone County Conservation District; Shannon Messenger, City of Loves Park, Public Works Department; Scott Capovilla, City of Rockford Community Development; Jeremy Carter, City of Rockford Public Works; Chris Baer, Four Rivers Sanitary District; Doug Delille, IDOT District 2; Paula Hughes, Rockford Mass Transit District; Brandon Boggs, Village of Roscoe; Carlos Molina, Winnebago County Highway Department; Karl Palmquist, Winnebago County, Community Development; Dennis Anthony, Winnebago County Soil & Water Conservation District.

Members Absent: Boone County, Planning Department; Chicago/Rockford International Airport; City of Belvidere, Planning Department; City of Belvidere, Public Works Department; City of Loves Park, Community Development; Rockford Park District; City of Machesney Park, Community Developments; Village of Machesney Park, Public Works; Forest Preserves of Winnebago County; Village of Winnebago.

Other Present: Collin Belle, City of Rockford Community Development; Tim Hinkens, City of Rockford Public Works; Brandon Rucker, Clara Romeo, Eric Tison, Estelle Adiaba, Lauren Kleve, Nathan Larsen, Sarah Renicker, Tim Verbeke, Jackson Sitter, Marilla Smith, Vanessa Mauries and Chloe Barnes of Region 1 Planning Council.

3) Public Comment

No public comments were brought forward at this time.

4) Discussion Items:

a) **National Association of Regional Councils (NARC) Reauthorization Letter to Congress-** Tim Verbeke described the memo developed and introduced by NARC to be sent to the House Committee on Transportation and Infrastructure, advocating policy priorities to help draft and develop the next surface transportation legislation.

5) Action Items:

a) Approval of the May 1, 2025 Meeting Minutes

Mr. Verbeke called for the approval of the 5/1/2025 meeting minutes. Mr. Molina, Winnebago County Highway Department, motioned, seconded by Mr. Messinger, City of Loves Park Public Works Department. With no discussion, motion passed by unanimous vote.

b) Amendment to the FY 2026 Unified Planning Work Program (Resolution 2025-12)

Mr. Verbeke explained that there was a \$200k surplus of funds from UWP FY25 budget that can be carried over and used up until 12/31/2025. Projects that can be carried over include the Housing Corridor Study, the Water Quality Study and the upcoming Southwest Rockford Traffic study, focusing on the area around Levings Park. Mr. Verbeke called for a motion to approve the amendment, motion provided by Mr. Krohn, Boone County Highway Department and seconded by Mr. Palmquist, Winnebago County Community Development. Motion **passed** by unanimous vote.

c) Adoption of the 2050+ Metropolitan Transportation Plan for the Rockford Region (Resolution 2025-13)

Mr. Verbeke explained that this document is a federally required document, that is updated every 3 years to address long-range transportation needs in the region. This document has been reviewed and discussed in previous meetings, so Mr. Verbeke didn't go into deep detail. Mr. Verbeke called for a motion to adopt. Mr. Capovilla, City of Rockford Community Development motioned, seconded by Mr. Molina, Winnebago County Highway Department. Motion **passed** by unanimous vote.

d) Adoption of 2025 Coordinated Public Transit Human Services Transportation Plan for the Rockford Region

(Resolution 2025-14) Mr. Rucker explained that the Human Services Transportation Plan is also a federally required document that addresses the unique transportation needs of seniors and individuals with disabilities. The plan describes current transportation available, location data and service changes since the last published document, and described goals and strategies for the region. The plan went out for public comment from May 5-June 2, where one comment suggested keeping in mind the aging population and its impact on transit. With no questions, Mr. Verbeke called for a motion to adopt. Ms. Hughes, Rockford Mass Transit District, motioned, seconded by Mr. Messinger, City of Loves Park. Mr. Verbeke then called for a vote. Motion **passed** unanimously voice vote.

e) Adoption of the FY 2026-2029 Transportation Improvement Plan (Resolution 2025-15) Mr. Larsen explained

that the Transportation Improvement Plan is also a federally required document that coordinates regional infrastructure and non-infrastructure projects, and is updated yearly to map out the next 3 years of projects and funding. This year's TIP has 146 projects listed, costing approximately \$844 million, up about \$100 million from the previous year. 2/3 of the projects listed fall into the preservation category. Mr. Verbeke called for a motion to adopt. Mr. Molina, Winnebago County Highway Department motioned, seconded by Mr. Capovilla, City of Rockford Community Development. Motion **passed** with unanimous voice vote.

f) Adoption of the Title VI Considerations for the Rockford Metropolitan Planning Organization (Resolution 2025-

16) Mr. Larsen explained that this document has been developed to comply with federal requirements, and that it was last updated in 2020. The document sets policy and procedures to ensure that those groups listed in the Civil Rights Act of 1964 are represented and that processes are in place to ensure equitable and fair access to the services of the organization. The document was updated based on current legislation and provides more statistical coordination which helps inform projects related to certain populations. With no questions, Mr. Verbeke called for a motion to adopt. Mr. Carter, City of Rockford Public Works Department motioned, seconded by Mr. Palmquist, Winnebago County Community Development. Mr. Verbeke called for a vote, motion **passed** with unanimous voice vote.

Staff Reports-

Mr. Verbeke announced the opening of applications for the Safe Routes to School program on August 1, 2025. He also indicated that the NOFO for Safe Streets for all would also be going out at the end of the summer, early fall. He then talked about attending the NARC conference in Seattle, two weeks ago, and that staff came away from it with a positive experience.

6) Agency Reports

- a.) **Boone County Highway Department:** Resurfacing project is $\frac{3}{4}$ of the way complete and is on schedule to be complete at the end of June. The Canadian Pacific Rail bridge replacement is also scheduled for next year.
- b.) **Boone County Conservation District:** BCCD received \$2.7 million ITEP award to replace 5 bridges, with 7 additional bridges needing replacement. Once complete all structures between Rt. 76 and the McHenry/Boone County line will be less than 10 years old.
- c.) **Boone County Transit:** Architect Design has gone to the board for approval.
- d.) **Chicago/Rockford International Airport:** No Report
- e.) **City of Belvidere, Public Works:** n/a
- f.) **Loves Park, Community Development:** n/a
- g.) **Loves Park, Public Works Department:** FH project, Watermain by the middle school is wrapping up and road resurfacing will be wrapping up soon.
- h.) **City of Rockford Community Development:** No Report
- i.) **City of Rockford, Public Works Department:** Whitman St. project is underway and progressing, as well as the 11th Street project. The Ironman Triathlon is this weekend which will result in road closures and detours.
- j.) **Four Rivers Sanitary District** Sewer project has been awarded and work will begin near the Alpine/Harrison intersection, which will result in improved service impacts to Cherry Valley and parts east. The Mainline project will be wrapping up in August, and service repairs are scheduled to begin for City of Rockford and Machesney Park by the end of the month.
- k.) **IDOT, District 2:** No Report
- l.) **Rockford Mass Transit District:** No Report
- m.) **Rockford Park District:** No Report
- n.) **Machesney Park, Community Development:** No Report
- o.) **Machesney Park, Public Works Department:** No Report
- p.) **Village of Roscoe:** 2025 Residential Resurface project has had it's bid opening.
- q.) **Winnebago County Community & Economic Development:** No Report
- r.) **Winnebago County Highway Department:** Kishwaukee project and Linden Rd/S. Mulford project are complete. SS4A application will be submitted for the Ralston Rd./Rt 251 area. HSIP project is underway with Forest Hills/Pleasant Valley the area of focus. The Riverside Project is continuing to pursue Right-of Way Acquisition, and the Owen Center Rd. project has begun the Right-of-Way Acquisition process.
- s.) **Winnebago County Soil & Water Conservation:** n/a
- t.) **FHWA, IL Division:** No Report
- u.) **IDOT, Division of Urban Planning and Programming:** No changes to report.
- v.) **IL Tollway:** Bridge repair projects on I-90 will take place this summer effecting Rockton/Belvidere Rd. Spring Creek/Harlem/Rote Rd. Tentative schedule has been released with repairs taking between 4-6 weeks.

7) Other Business

Mr. Molina asked for an update on the State of the Trails project. Mr. Larsen explained that phase 1 data collection has been completed, and the data is being process with the help of Iowa State University staff who have experience with this kind of project. Images have also been uploaded to Google Street View of the completed routes. Phase two

will begin, moving to those paths east of the river, including the Perryville Path and its arteries, as well as the Willow Creek Path.

Mr. Krohn asked if there was a scoring criterion update for eligible project funding. Mr. Verbeke explained that the Policy committee has approved the transition to a 2-year funding cycle, and that the criteria will be discussed in the coming months.

8) Adjournment

Mr. Verbeke entertained a motion to adjourn. Mr. Molina, Winnebago County Highway Department motioned; seconded by Mr. Krohn, Boone County Highway Dept. A unanimous vote to adjourn at 10:28 am

Meeting minutes prepare by: Sarah Renicker

Minutes approved by action of the Board: _____



REGION 1 PLANNING COUNCIL MPO POLICY COMMITTEE

MPO RESOLUTION 2025-17

RE: **Amendment to the Fiscal Year 2026-2029 Transportation Improvement Program**

WHEREAS the Federal Highway Act of 1962, as amended, and the Urban Mass Transportation Act of 1964, as amended, provide for an urban transportation planning process; and

WHEREAS the Infrastructure Investment and Jobs Act (IIJA) currently authorizes funding to improve our nation's transportation system for highways, highway safety, public transit, alternative non-motorized forms of transportation, and freight; and

WHEREAS the IIJA Act and its predecessors, require a Long-Range Transportation Plan (LRTP) as well as a Transportation Improvement Program (TIP); and

WHEREAS the Region 1 Planning Council is the Metropolitan Planning Organization (MPO) for the Rockford Urban and Metropolitan Area, and the MPO Policy Committee has the specific responsibility to direct and administer the continuing urban transportation planning process; and

WHEREAS the MPO Policy Committee has adopted the June 20, 2025 version of the Fiscal Year 2026-2029 Transportation Improvement Program (TIP) and;

WHEREAS the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have approved the FY 2026-2029 MPO TIP; and

WHEREAS the Illinois Department of Transportation District #2 has requested the addition of one (1) new project phase, the Illinois Department of Transportation Office of Programming and Policy has requested the addition of one (1) new project, the Boone County Highway Department has requested the addition of one (1) new project, and the City of Rockford has requested a change in fiscal year for one (1) project funded by MPO attributable funds; and

WHEREAS the projects being amended in the adopted and approved version of the FY 2026-2029 TIP will not affect or impact the other projects listed in the FY 2026-2029 MPO TIP; and

WHEREAS the MPO Technical Committee has recommended the adoption of the TIP amendment by the MPO Policy Committee; and

NOW, THEREFORE, BE IT RESOLVED THAT:

The MPO Policy Committee hereby amends the FY 2026-2029 MPO Transportation Improvement Program to include the projects listed in "Attachment A".

We hereby certify the foregoing has been approved by a majority of the MPO Policy Committee Members on this 22nd day of August 2025.

Chairman Joseph V. Chiarelli
MPO Chair

Chairman Karl Johnson
MPO Vice-Chair

Number of members authorized to vote _____

Ayes _____

Nays _____

Abstain _____

DRAFT

Attachment A

Fiscal Year 2026

Highway Projects

Project #	Project Location	Termini	Project Type	Phase of Work	Federal Share (000s)		State Share (000s)		Other Share (000s)		Total	Amendment Action
					Source	Amount	Source	Amount	Source	Amount		
01 - Illinois Department of Transportation (IDOT)												New Project Phase
1-17-7*	I-39, US 20 & Harrison Avenue	Harrison Ave over Kishwaukee River	Capacity	CON	NHPP	\$2,400	State	\$600	-	-	\$3,000	
31 - IDOT Office of Planning and Programming (IDOT OP&P)												New Project
31-26-01*	I-90 Electric Vehicle Charging Stations	4150 N Bell School Road, Loves Park (Home2 Suites)	Capacity	CON	Other	\$580	-	-	Other	\$471	\$1,051	
13 - Boone County												New Project
13-26-01	Poole Road	2600 ft west of CN railroad to 2600 ft east of CN railroad	Safety	DES	-	-	GCPF	\$162	-	-	\$162	
13-26-01	Poole Road	2600 ft west of CN railroad to 2600 ft east of CN railroad	Safety	CON	-	-	GCPF	\$624	-	-	\$624	New Project
03 - City of Rockford												Change in Fiscal Year (MPO Attributable Funds)
3-18-9*	West State Street/Pierpont Avenue	Concord Commons to Pierpont Avenue to School Street	Bicycle & Pedestrian	CON	TAP	\$265	-	-	Local	\$59	\$324	