



Council Study Meeting
August 19, 2019
7:00 p.m. or
Immediately Following the City Council Meeting
City Council Chambers

Agenda

1. Presentation of the Hillcrest Concept Study
2. Discussion regarding Boston and "J" Street Study Findings
3. Other items

City Council Study Meeting

1.

Meeting Date: 08/19/2019

Information

Subject

Presentation of the Hillcrest Concept Study

Information

In your packet is the memo and maps from Snyder and Associates concerning the Hillcrest Concept Study.

Fiscal Impact

Attachments

Concept Study Memo

Hillcrest Maps

Memorandum

To: City of Indianola

Date: 6/27/19

From: David N. Moeller

CC:

RE: HILLCREST CONCEPT STUDY
CITY OF INDIANOLA
S & A CONTRACT NO. 118.1165

INTRODUCTION

The E Hillcrest Avenue corridor from US 65/69 east has experienced traffic growth due to city wide development and development directly adjacent to and served by the corridor, including Summerset Hills and several site developments. This corridor will continue to serve as a primary east/west access to future development areas in the city.

In anticipation of the growing demand, and in consideration of the existing conditions, the City requested Snyder & Associates Inc. to prepare a corridor concept study to plan needed improvements to maintain an acceptable level of service and avoid operational issues. The study included:

- 20 year traffic forecasts
- Access control and future street geometry
- Typical roadway section
- Multi modal bicycle and pedestrian considerations
- Major drainage structures and accommodation
- Construction Cost Opinion and Implementation plan

EXISTING CONDITIONS

Traffic & Operations

E Hillcrest Avenue is classified as a Collector on the Central Iowa Transportation Planning Alliance (CIRTPA) official map and on Iowa DOT and City (Major Collector) planning documents. The 2016 Iowa DOT traffic counts showed a significant range of traffic volumes from 5,900 vehicles per day near Jefferson Way (US Highway 65/69) to 1,140 vehicles per day near 14th Street as shown on **Figure 1**.



Figure 1: Iowa DOT 2016 Annual Average Daily Traffic (AADT) Volumes

Land use along the corridor is primarily commercial and industrial with some agriculture and residential properties. The comprehensive plan shows future land use along the corridor transitioning from commercial and residential west of N 6th Street (Mixed Residential), to industrial land uses east of N 9th Street. Several parcels adjacent to the corridor are currently under development with site plans or plats on file with the Community Development Department.

Access is allowed for public street, commercial, and undeveloped residential with no set spacing, nor have access rights been acquired. Single residential accesses are prohibited for collector streets illustrated in the comprehensive plan. Land use and current development areas are shown in **Figure 2**.

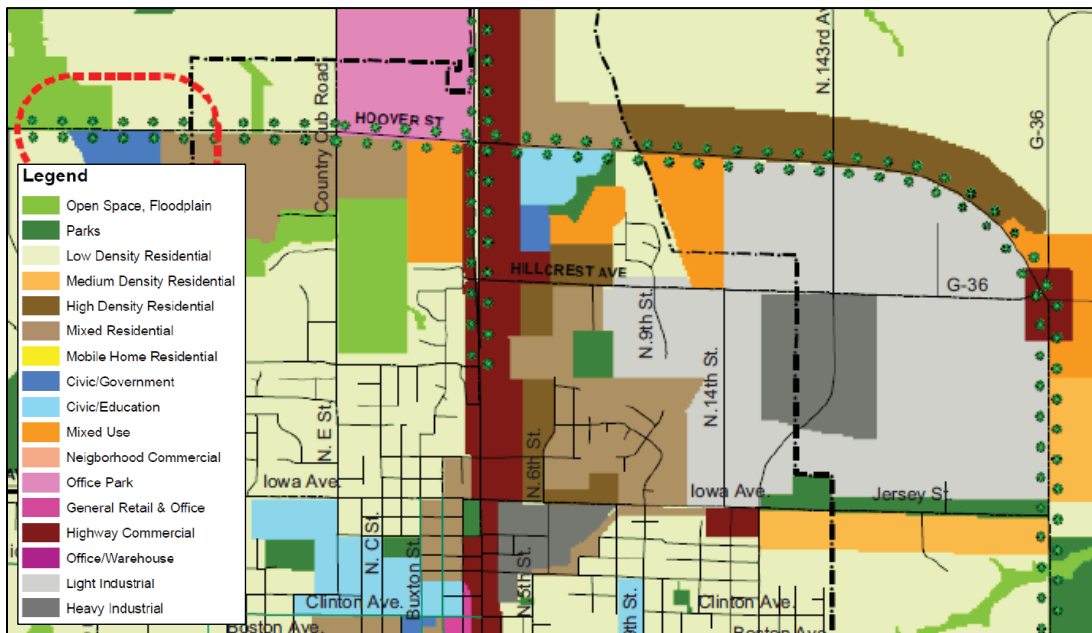


Figure 2: Future Land Use Plan Along E Hillcrest Avenue (Adopted 2011, Updated 2013)

The Carlisle to Indianola trail crosses Hillcrest Avenue approximately between N 9th Street and N 14th Street at grade, with advance warning signs for both vehicles and trail users. There is a planned trail connection from the Carlisle to Indianola trail crossing west to Jefferson Way on the north side of Hillcrest Avenue. Sidewalks are provided on N 9th Street north and south of Hillcrest Avenue. N 4th Street and N 6th Street have sidewalk north of Hillcrest. There are no sidewalks along the south side of Hillcrest Avenue as it is currently a rural cross section with no curb and gutter.

Hillcrest Avenue is a 22-feet wide, rural paved roadway with 4' to 6' wide gravel shoulders and shallow ditches. The roadway was paved in 1980 with 6 inches of Portland Cement Concrete and no reinforcing. The pavement has provided nearly 40 years of service and is in good condition for its age. Signs of distress are evident and a rapid decrease in pavement condition and level of service is anticipated.

Significant utility infrastructure is present along the corridor including domestic water, sanitary sewer, data and communications as well as a mix of overhead and underground electric service.

Hillcrest Avenue, as its name suggests, travels along the crest of a hill and does not have significant drainage facilities. The largest crossing is a 36-inch diameter culvert near the Indianola to Carlisle trail. The culvert is near capacity and the roadway may need to be raised to prevent overtopping during large storm events.

ANALYSIS & RECOMMENDATIONS

Traffic Projections

Based on the development information and historic patterns, a range of growth rates from 2%-4% would result in future year 2040 traffic volumes of 9,500 – 15,200 veh/day (near US 65/69). These traffic volumes are within the range that can be served by a three-lane corridor with good access management and driveway/signal spacing. The upper capacity limit of a three-lane corridor is considered to be approximately 18,000 vehicles per day. Detailed analysis of traffic projections were summarized in the February 21, 2019 traffic forecast technical memo.

Planning for E Hillcrest Avenue generally as a three-lane corridor with consideration for future traffic signal locations is appropriate. Auxiliary turn lanes at major intersections should be planned and constructed when demand warrants.

A three-lane section, 37-feet wide, is recommended for the segment from N 4th Street to 14th Street, where existing access and less desirable spacing needs to be accommodated. The proposed section provides one eastbound and one westbound through lane and a shared center two-way, left-turn lane. At signalized intersections, the two-way, left-turn lane will be marked as a standard left-turn lane, and right-of-way should be maintained for potential right turn lanes (e.g. eastbound E Hillcrest Avenue to southbound on N 14th

Street). E Hillcrest Avenue has this cross section between Jefferson Way (US 65/69) and N 4th Street.

For the segment east of 14th Street where accesses can be better controlled and planned, it is appropriate to narrow the pavement width to 31 feet, standard for a collector street.

GEOMETRICS & TRAFFIC CONTROL

Traffic control at intersections and driveways would be two-way stop control, with stop signs for minor approaches to E Hillcrest Avenue. Future access/driveway spacing should be carefully reviewed with development plans to exceed minimum Iowa SUDAS Design Manual (Chapter 5L-3) criteria, with most access locations at public street intersections.

Future potential signalized intersections should be spaced at least ¼-mile (1,320 ft) apart and should be located at intersections providing connectivity to multiple land uses. These East Hillcrest Avenue intersections should be monitored for traffic signal warrants as the corridor develops:

- N 6th Street
- N 9th Street
- N 14th Street
- N 17th Street (143rd Avenue)

Various intersection traffic control techniques were considered, including roundabouts, however signals are recommended due to the anticipated increase in truck traffic on this corridor with continued industrial development. Existing truck traffic is approximately 3%, or 200 trucks per day, including single-unit and combination trucks. Of those 200 total trucks, approximately 75 were classified as combination trucks. Future truck traffic potential will vary based on specific industrial types – many have a large footprint however only occasional truck delivery. Nonetheless intersection geometric design, including turn-lane lengths, sight distance and corner radii, should accommodate truck-turning movements.

It is appropriate to develop Hillcrest Avenue as an urban section with curb and gutter to match in with the urbanizing surroundings. While the pavement is near its service life, some areas are in good condition and widening the existing road was contemplated. However, several factors combine to lead toward a recommendation for full-depth reconstruction, including:

- Pavement distress suggests subgrade failure and the compacted earth subgrade is susceptible to frost action such that a drainable granular sub base and longitudinal subdrains are recommended.
- Based on anticipated truck traffic the pavement should be 8" with reinforcing at the joints.

- Roadway grades are very flat from N 4th Street to N 9th Street and near 14th Street such that gutters do not flow effectively and unsafe roadway ponding will occur. Therefore, the slope needs to be modified.
- The wider roadway can be constructed within existing right of way if the profile is lowered.

The existing pavement was constructed with good quality aggregate and is a good candidate to be recycled into the recommended drainable granular subbase

Multimodal Considerations

Connectivity for pedestrian and bicycle travel is an important part of a community's well-being and quality of life, and has been supported through the City's policies and planning efforts. The proposed reconstruction would include curb and gutter and, by ordinance, parallel sidewalks are required. The connection to the Indianola to Carlisle trail provided crucial linkage between areas of employment and neighborhoods providing modal alternatives that is a unique opportunity with this project.

As traffic volumes on Hillcrest Avenue and trail usage increases, crossing safety concerns arise. Currently, the Indianola to Carlisle trail crosses Hillcrest Avenue at a skew, creating difficult sight lines and an increased crossing distance for path users. Widening Hillcrest Avenue to a three-lane section escalates these issues and warrants safety improvements. Recommended improvements include realigning the trail to create offset perpendicular approaches and installing a Danish-Offset refuge island. The refuge island allows path users to focus on crossing only one direction of traffic at a time, as the island provides a protected halfway point. The Danish-Offset creates two offset perpendicular approaches, which orients the users towards the direction of traffic they're crossing to safely identify approaching vehicles. Minimizing path users' exposure to traffic and increasing their ability to safely identify vehicular traffic creates a safer crossing environment.

Summary

The proposed geometry, traffic control and access locations are shown on ***Exhibits 1 – 5***.

The opinion of probable construction cost for the build-out of the entire project is \$8,165,000, based on 2019 construction cost data. The cost opinion and work item summary is detailed ***Exhibit 6***.

IMPLEMENTATION PLAN

The full build out of the corridor is a significant investment for the City and should be planned for orderly development, based on priority improvements and coordinated with development opportunities as they arise. Based on input from City staff Snyder & Associates has developed an implementation plan for consideration.

Priority improvement areas include:

- Areas where pavement condition has begun to rapidly deteriorate
- Areas where traffic volumes and turning movements are increasing rapidly
- Areas that are actively developing. To avoid rework of the entrance pavement.
- Areas that can facilitate staged improvement to facilitate maintenance of access and traffic flow.

Hillcrest Avenue provides single access to several developments and the Quail Meadows development area. Consequently, the project will have to be staged construction under traffic which will increase the duration and overall cost of the improvements. It is anticipated that construction will include five packages or stages:

- | | |
|---------|---|
| Stage 1 | Grading, storm sewer and utilities, N 4 th Street through N 9 th Street |
| Stage 2 | Paving N 4 th Street east to N 9 th Street |
| Stage 3 | Grading, storm sewer and utilities from N. 9 th Street to N 14 th Street |
| Stage 4 | Paving N 9 th Street through N 14 th Street |
| Stage 5 | Grading and paving – N 14 th Street north to N 17 th Street, turn lanes and traffic signalization |

Funding Opportunities

Hillcrest is a collector on the official map, and the improvement project is eligible for CIRTPA funding since. CIRTPA eligibility open possibilities for other state and Federal funding programs as well such as:

STBG- Surface Transportation Block Grant- based on available sub-allocation amounts
TAP and Recreation Trails Program(state) – Transportation Alternatives Program – for trail crossing improvements

TSIP/TSF- Traffic Safety funds- limited to safety improvements including signal installations.

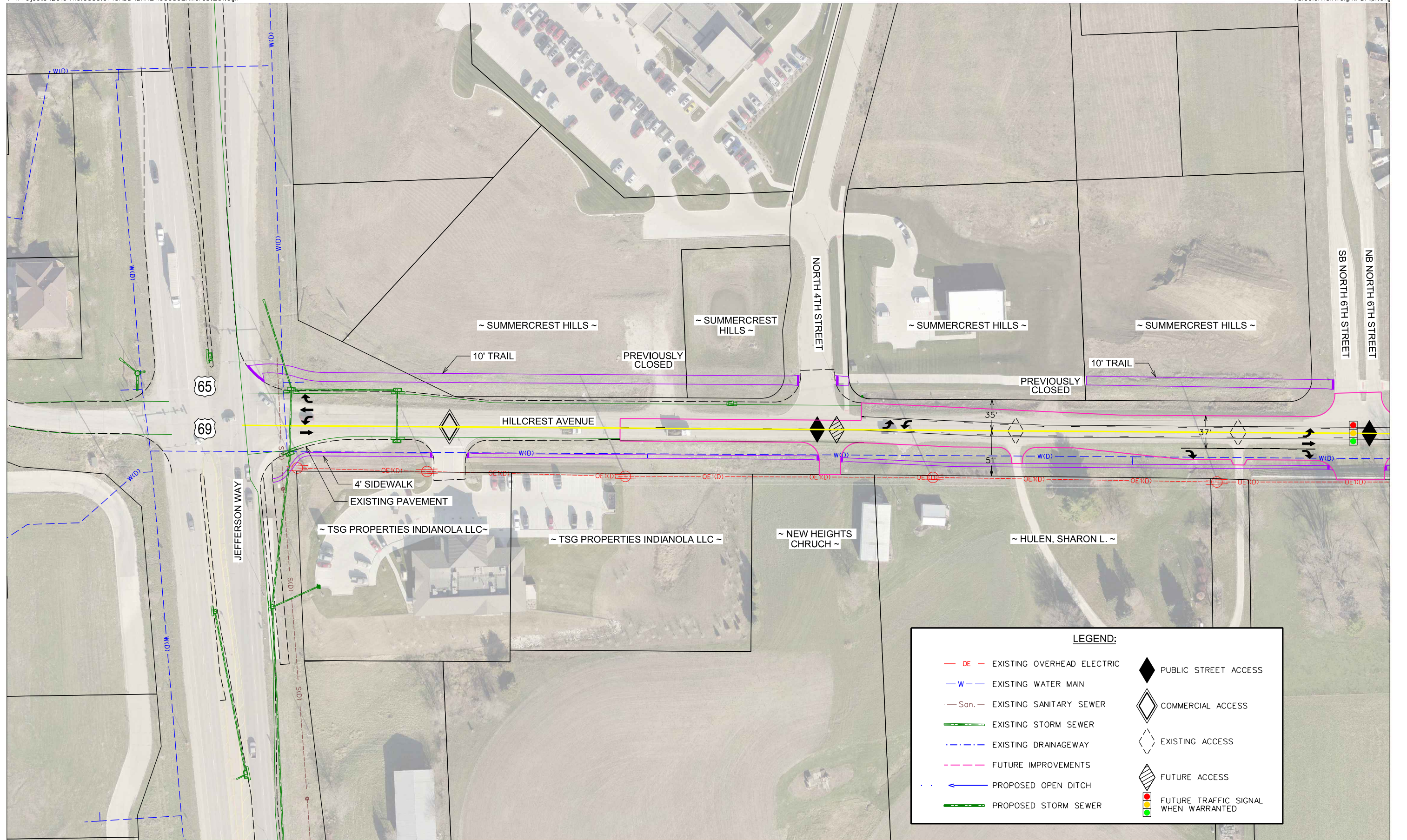
RISE – Revitalize Iowa’s Sound Economy – to support an immediate opportunity or local development for a new development served by corridor improvements. Limited to a developments that would create new jobs.

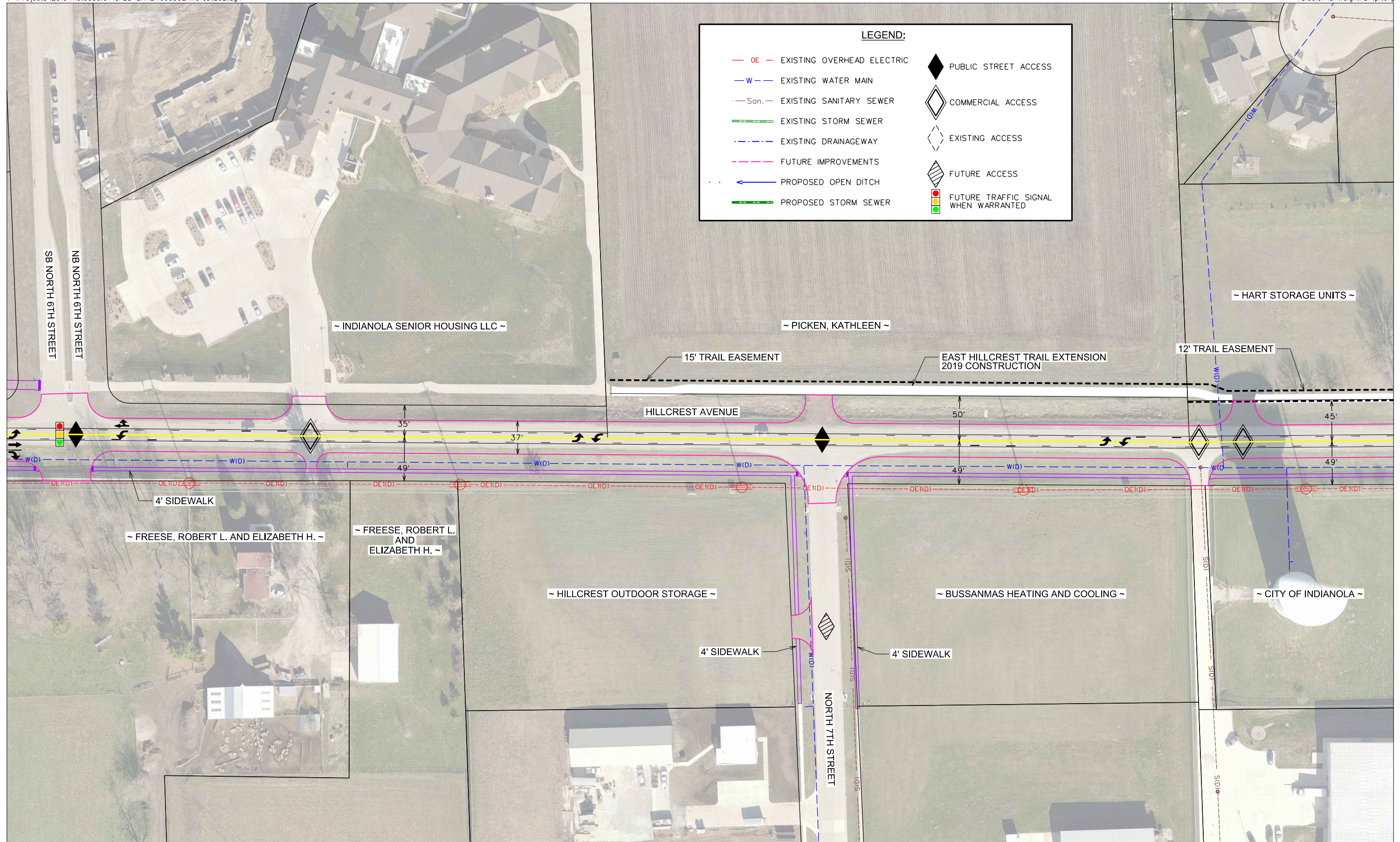
ICAAP- Iowa Clean Air Attainment Program for improvements that would improve vehicle efficiency and reduce emissions. Awarded annually through a competitive application process.

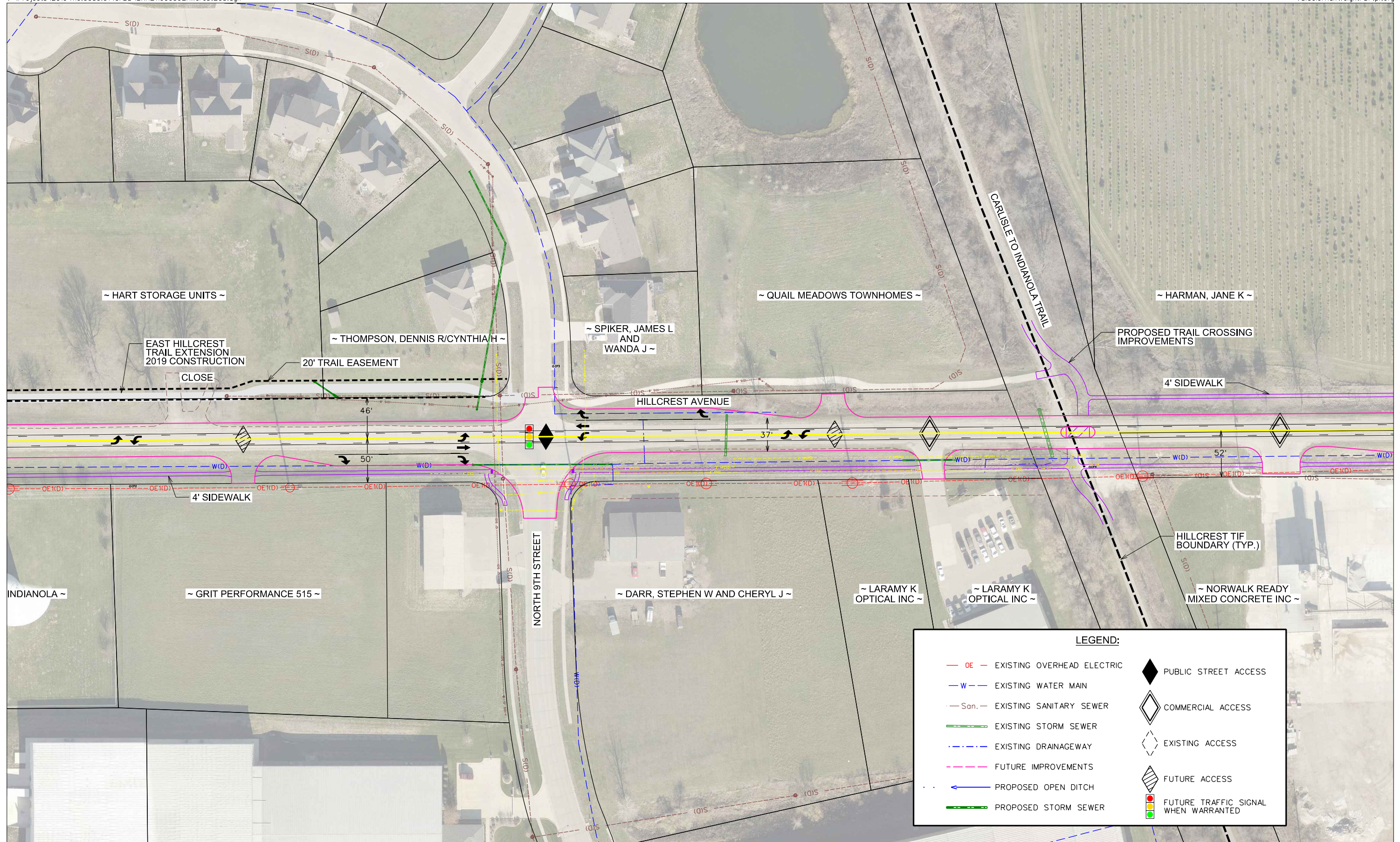
In addition to state and federal programs there are local funding options available for programming the project in the City’s CIP.

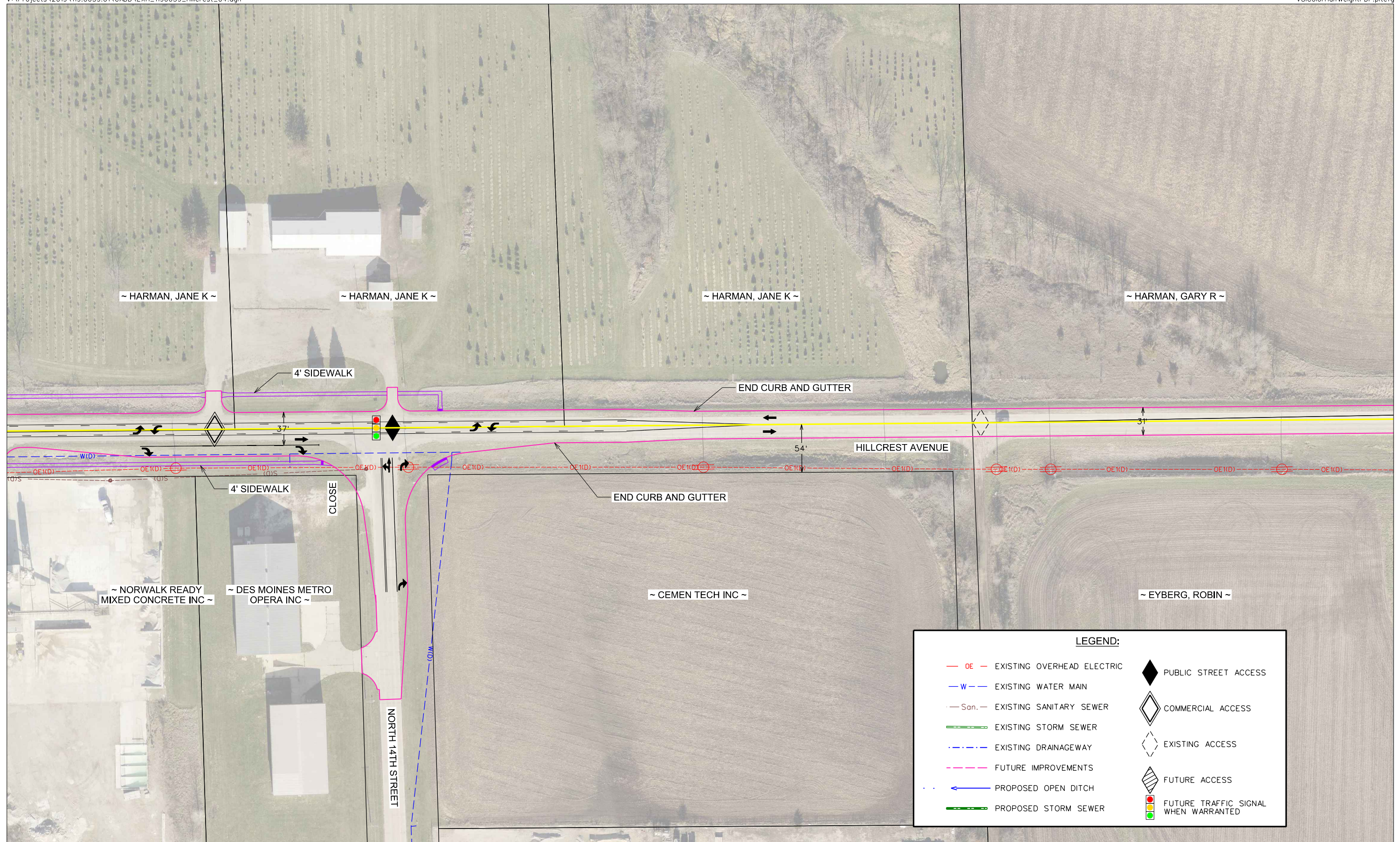
The segment east of the trail crossing is part of the Hillcrest TIF district and may be eligible for TIF funding.

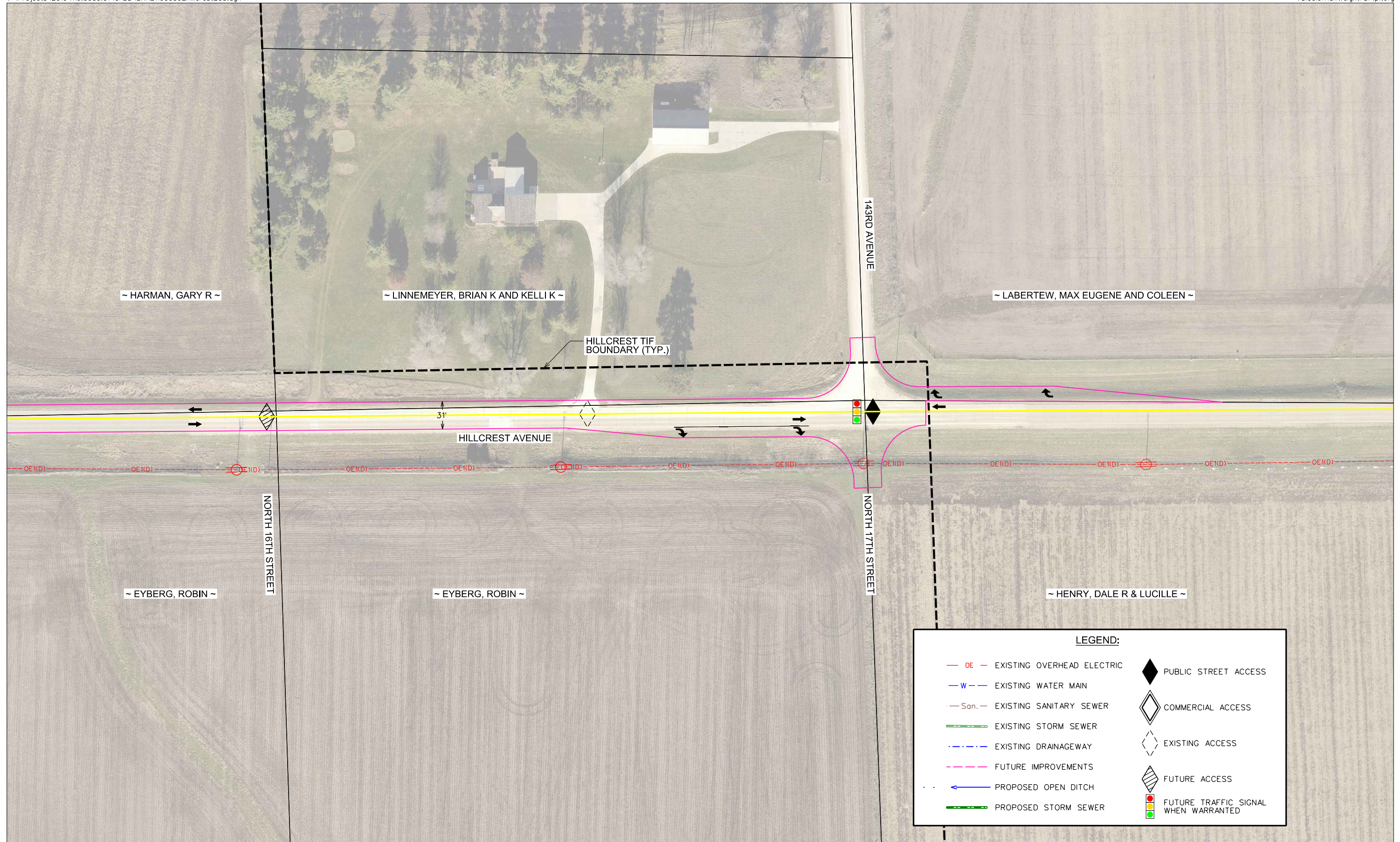
Since it is CIRTPA eligible and already paved it is not eligible for special assessments by City Council policy.











LEGEND:

— OE —	EXISTING OVERHEAD ELECTRIC	◆	PUBLIC STREET ACCESS
— W —	EXISTING WATER MAIN	◇	COMMERCIAL ACCESS
— San. —	EXISTING SANITARY SEWER	◇	EXISTING ACCESS
— —	EXISTING STORM SEWER	◇	FUTURE ACCESS
— — —	EXISTING DRAINAGEWAY	◻	FUTURE TRAFFIC SIGNAL WHEN WARRANTED
— — —	FUTURE IMPROVEMENTS		
— — —	PROPOSED OPEN DITCH		
— — —	PROPOSED STORM SEWER		

City Council Study Meeting

2.

Meeting Date: 08/19/2019

Information

Subject

Discussion regarding Boston and "J" Street Study Findings

Information

In your packet is a memo regarding West Boston and North J Street Drainage Improvements.

Fiscal Impact

Attachments

Boston and J Street Memo



— Streets Department —

Date: August 15, 2019

To: Mayor and City Council
From: Jason C. Etnyre, Street Superintendent
Cc: Ryan Waller, City Manager
Andy Lent, Finance Director
Subject: West Boston and N J Street Drainage Improvements

As part of the ongoing effort to make improvements of the storm sewer system within the City, certain key areas of focus have been identified for study and design of immediate improvements. One of these areas of flooding and water congestion is the vicinity/neighborhood of West Boston and North J.

At the May 20, 2019 Council Meeting, Council approved Supplemental Agreement No. 18 with Snyder & Associates, Inc. in the amount of \$90,000 for the survey, hydraulic modeling, geotechnical investigation, preliminary road and drainage design, public information meetings, and additional items necessary to determine the best course of direction with a future stormwater project.

Snyder has completed the initial portions of this agreement and is now prepared to share its initial findings for this watershed area. Staff will be seeking guidance from Council as to the next steps in the stormwater management in this watershed area.



City Council Study Meeting

3.

Meeting Date: 08/19/2019

Information

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Other items

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Fiscal Impact

Attachments

No file(s) attached.
