

## EXECUTIVE SUMMARY

This design report summarizes improvements for the proposed street reconstruction of Sixth Street from Kansas City Street to Omaha Street. The primary purpose of this project is to replace infrastructure including:

- Street pavement and curb and gutter
- Storm Sewer that is aged and or undersized
- Old cast iron water mains along Sixth Street
- Sanitary sewer manholes constructed of brick and mortar
- Street lighting along Sixth Street, traffic signals at Main and St. Joseph Streets, and electrical upgrades including new conduit and electrical receptacles
- ADA Improvements and upgrades that allow accessible routes to all public places and businesses

In addition to infrastructure improvements, this street reconstruction project grants the opportunity to improve and modernize the downtown area with streetscape improvements.

### Streetscaping for the project includes:

- New regular concrete and colored concrete sidewalks and reshaped sidewalk areas.
- Planting Areas
- Node areas at Main and St. Joseph Streets will receive new streetscaping, as appropriate.
- Upgraded street furnishings including benches, bike racks, trash receptacles, etc.
- The streetscape will provide a unified character.

The need for improvements to the Sixth Street streetscape in Downtown Rapid City is part of a timely update as the character of the urban setting surrounding it continues to be dynamic and evolving. Downtown Rapid City is undergoing a transformation that warrants holistic planning, context sensitive design, and a fresh look at how the streetscape is used, perceived, and designed for the future. Plans for a promenade that link the Civic Center to the Dakota Middle School are foremost in this planning effort and we are essentially making decisions now that are pivotal to concepts such as the promenade.

Early discussions with Design Team and Rapid City Engineering and Growth Management have identified the need to develop options for the design of Sixth Street that best represent significantly different themes. These options can be closely linked to a simple consideration for design; are we designing the facility to be primarily for the purpose of:

- A. Accommodation of vehicular traffic with secondary consideration for pedestrians.  
- - - Or - - -
- B. Accommodation of pedestrian movement while allowing essential vehicular movement.

In response to this primary consideration, the Design Team proposes three options from which to select a preferred option. Selection of a preferred option will be the first step of design refinement, and will need to involve feedback from Design Team, City of Rapid City Engineering and Planning Team, and Community Stakeholders in an open information sharing strategy. Plan sheets located in the back of the report delineate the options graphically.

Three Concepts are presented which provide a gradient from less to more pedestrian oriented, reflected in our proposed streetscape as providing a lesser to greater allowance for improvements to the portions of the street dedicated to pedestrian movements and activities. The Vehicle Option generally retains the streets current layout, inserting safety and sidewalk improvements. The Hybrid Option mixes this layout with greater pedestrian amenities and the Pedestrian Option provides a wider pedestrian environment, and maximizes the downtown street experience for the pedestrian (see Street Overview and Streetscaping Section of this report for reference).

Future project refinement will require that concepts include feedback from public participation (essentially downtown property and business owners and other stakeholder groups) and will/may need to be updated and refined.

#### **Recommendations for Sixth Street:**

- Implement the selected Vehicular Option for the street alignment.
- Replace existing pavement with 9 inches of Portland Cement Concrete on 5 inches of Aggregate Base Course.
- Renovate as needed the existing nodes at Main Street and St. Joseph Street.
- Contrast work scopes for pavement replacement to the existing nodes to be renovated and update/maintain ADA compliance throughout.
- Install colored concrete in all of the Pedestrian Travel Zones along Sixth Street as shown on the typical section sheets included with this report.
- Existing trees within the construction limits will be evaluated as to their appropriateness and remaining life span. In some cases existing trees may be removed and replaced based on collaboration between Landscape Architectural Designer and City Parks Department Urban Forester.
- Replace existing water main along Sixth Street with 8" PVC water main as shown on the Utility Alignments Plan Sheet included with this report.
- Replace existing Sanitary Sewer manholes within the project area. The existing sanitary sewer main shall remain in place.
- Replace Storm Sewer in accordance with the proposed sizes and alignments shown on the Utility Alignments Plan Sheet and Preliminary Plan and Profile sheets.

- Replace existing traffic signals, signal poles, pole bases, and signal conduit at the Main and St. Joseph Street Intersections.

**Public Action Needed:**

- A vital part of the project will be presentation of the three concepts to a stakeholder group consisting of members of the public who will be affected by the work. Their input to the concepts and direction for defining a standard that will be in place for years to come will be a key part of the decision making for the project. This group of stakeholders to include Councilpersons, Destination Rapid City members, Property Owners, and Downtown Business owners.

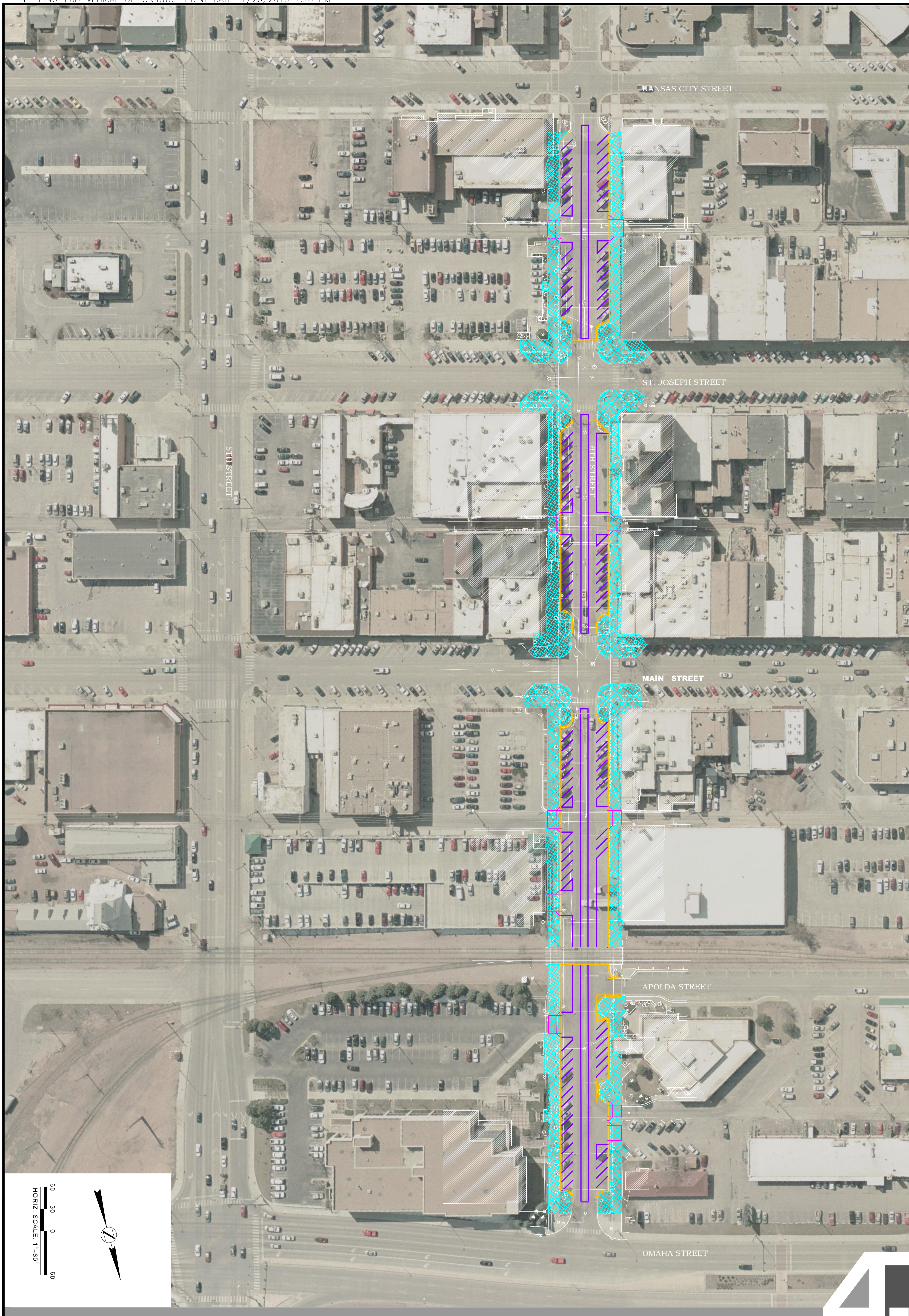
**Further Discussion is needed on the following issues:**

- Large delivery vehicles at the Northwest Warehouse facility occupy and block a large portion of the Sixth Street ROW. These delivery vehicles obstruct vehicular and pedestrian movements through the area. This operation is not in compliance with City regulations in regards to obstructing public right of way (Title 12.20.020) and appropriate use of loading zones (Title 10.40.110, 120, 160). In addition, the access approach width to the warehouse is not in compliance with Section 2.7.3.2 of the City of Rapid City Design Criteria. This report lists components of the street design (shown in the Street Overview and Streetscaping Narrative) that will be affected if this non-compliance issue is allowed to continue. It is recommended the current loading operations of the Northwest Warehouse be altered to be in compliance with City Ordinances and Design Standards by establishing a curb loading zone (similar to the loading zone in front of the Alex Johnson Hotel) that is outside of the driving lanes of 6<sup>th</sup> Street as to not obstruct vehicle and pedestrian traffic. In addition, a second loading dock could be constructed on the north side of the warehouse building to provide an additional loading area. More discussion will need to take place to try and accommodate the needs of the property owner in addition to meeting City regulations.
- After discussion with City Staff, the preliminary cost estimate for the Sixth Street Reconstruction Project currently exceeds the budgeted amount in the CIP. A common cost savings measure on street projects is to reduce the amount of proposed streetscape in order to meet funding requirements. Since this project is in the core of Downtown Rapid City, it is vital that adequate streetscaping is provided to match the revitalization effort taking place in Downtown Rapid City. Therefore, additional funding should be provided for the project to match the estimated construction costs. We recommend the design team continue with full design, providing for ample construction options to meet existing or newly established funding.

## Design Criteria References

- City of Rapid City Draft Infrastructure Criteria Manual
- City of Rapid City Drafting Standards Manual
- City of Rapid City Standard Specifications 2007 Edition
- Stormwater Quality Manual 2009 Edition
- City of Rapid City Parking Regulations
- Rapid City Downtown Development Plan
- Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines
- AET, Inc. Geotechnical Investigation Reports
- City of Rapid City Ortho Photos and Contours in electronic form
- City of Rapid City Drainage Criteria Manual
- City of Rapid City Design Plan for Downtown Area Drainage Basin – May 1989
- City of Rapid City Downtown Business District Plan and Map
- City of Rapid City Landscape Regulations
- Branding, Development, & Marketing Action Plan – Roger Brooks Report
- Projects for Public Spaces (PPS) Phase II Report
- Handbook of PVC Pipe Design and Construction, by Uni-Bell Pipe Association Dallas, Texas, Fourth Edition, 2001.
- State of South Dakota Department of Transportation Road Design Standards and Specifications
- AASHTO Roadway Lighting Design Guide
- Illuminating Engineering Society (IES)
- National Electrical Code (NEC)
- Wide Outside Lanes Are Superior to Bicycle Lanes, by Wayne Pein.  
<<http://www.humantransport.org/bicycledriving/engineering/wols.htm>>

- Wide Outside Through Lanes: Effective Design of Integrated Passing Facilities, by Steven G. Goodridge Ph.D.,  
<http://www.humantransport.org/bicycledriving/library/passing/index.htm>
- San Francisco's Shared Lane Pavement Markings: Improving Bicycle Safety, San Francisco Department of Parking and Traffic,  
[http://www.sfmta.com/cms/uploadedfiles/dpt/bike/Bike\\_Plan/Shared%20Lane%20Marking%20Full%20Report-052404.pdf](http://www.sfmta.com/cms/uploadedfiles/dpt/bike/Bike_Plan/Shared%20Lane%20Marking%20Full%20Report-052404.pdf)



# DOWNTOWN STREET IMPROVEMENTS PH.2 - SIXTH STREET

JOB NUMBER: 05.1149.E08  
DATE: 12/23/09

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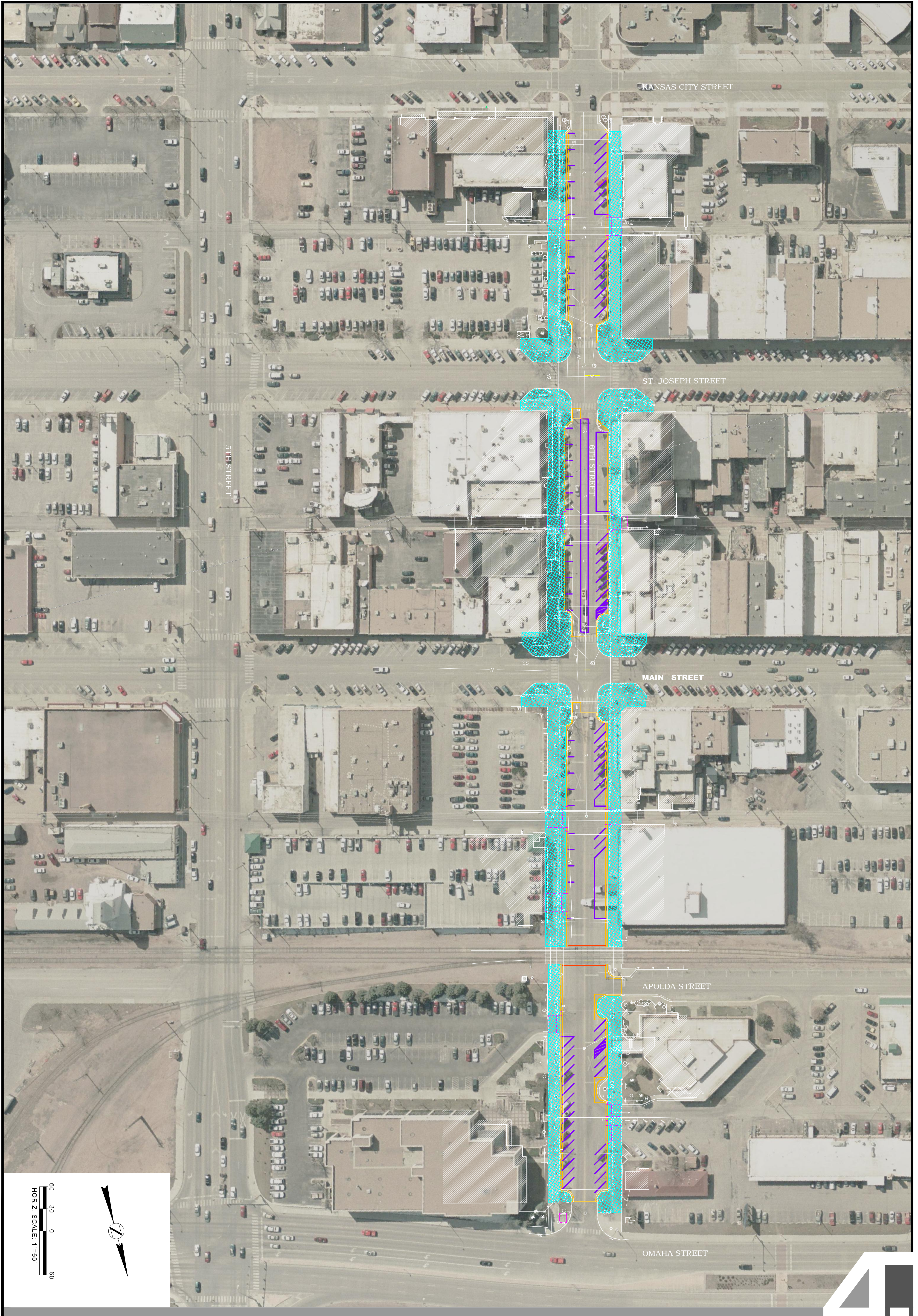


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OPTION

SHEET  
1

REVISIONS

TITLE



# DOWNTOWN STREET IMPROVEMENTS PH.2 - SIXTH STREET

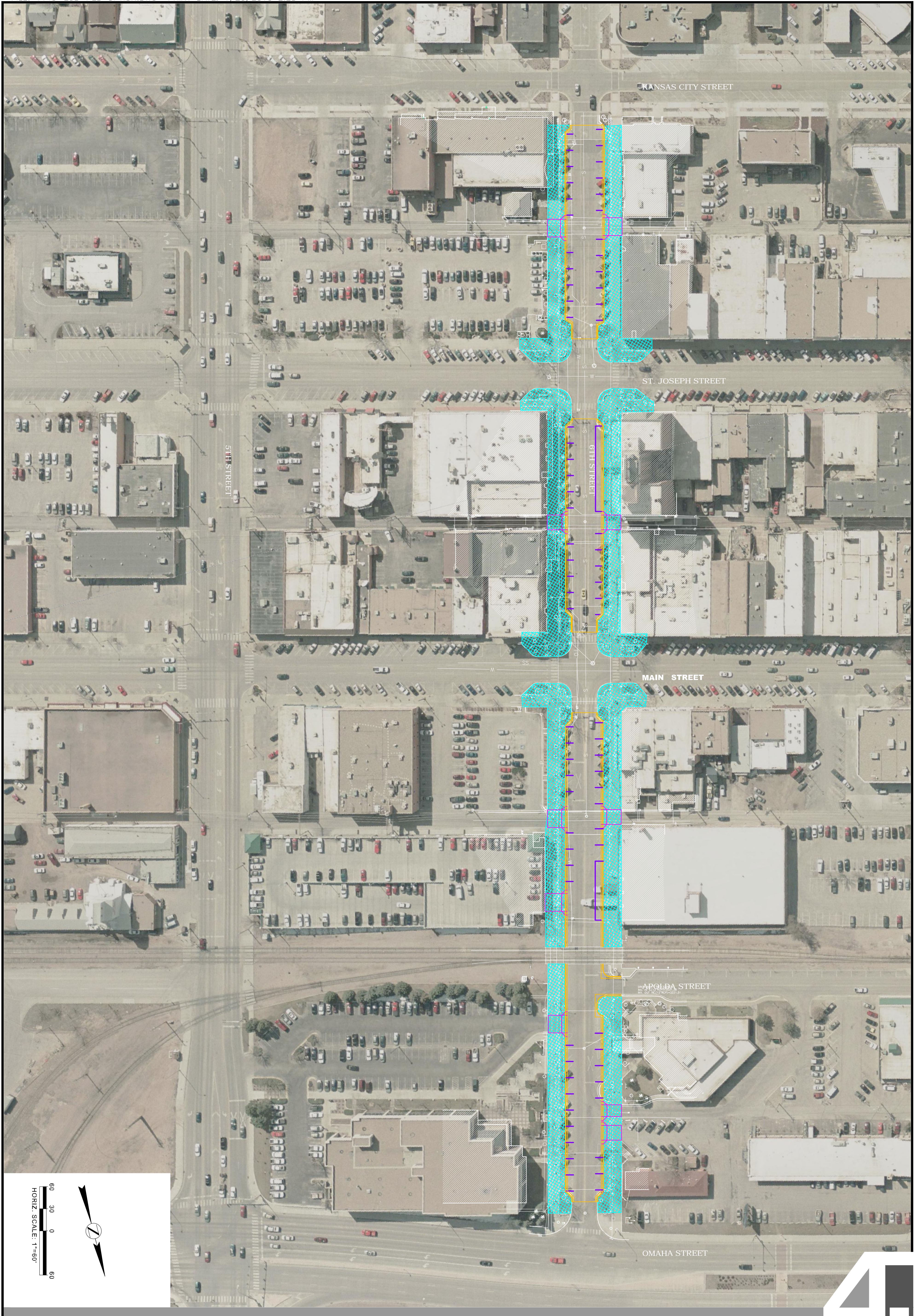
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SHEET  
2  
HYBRID  
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3	SHEET	PEDESTRIAN OPTION	TITLE
			REVISIONS


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PH.2 - SIXTH STREET**

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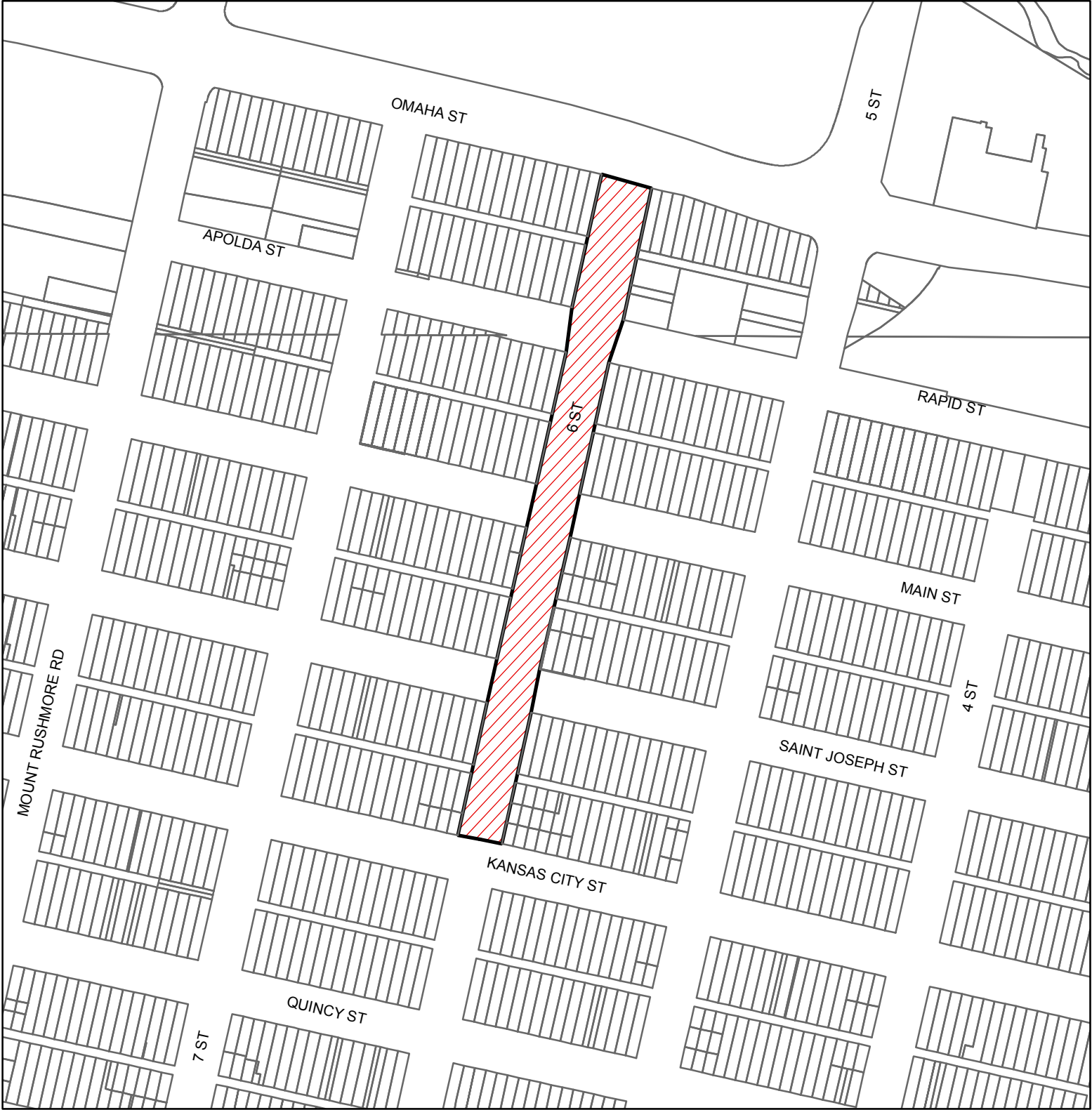
FOURFRONT  
DESIGN INC.



# EXHIBIT "A"

PW022310-12

SCALE 1" = 300'



**DOWNTOWN STREET IMPROVEMENTS-PHASE 2  
OMAHA STREET TO KANSAS CITY STREET  
PROJECT NO. ST10-1817**

**CIP NO. 50138**