



CITY OF DAVENPORT IOWA

in partnership with

Iowa DOT &
QC Chamber

RE: USDOT | RAISE Grant (2022)

PROJECT

DART

Protecting Davenport's Access to Riverfront Transportation

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SECTION I | PROJECT DESCRIPTION

OVERVIEW

The City of Davenport, Iowa, was founded along the banks of the Mississippi River in 1836. Such close proximity leaves the city vulnerable to flooding during high river events. Since 2000, both the quantity and intensity of these events have substantially increased. In 2019, the Mississippi River reached both its highest recorded crest and longest duration over flood stage. These flood events paralyze traffic, harm businesses, and threaten access to interstate travel. To combat this, the City initiated Project Davenport Access to Riverfront Transportation (DART) in partnership with the Iowa Department of Transportation and the Quad Cities Chamber of Commerce. Implementation of Project DART will result in increased transportation system reliability and increased mobility for freight and supply chain efficiency by preventing road closures and diversions due to flooding. The proposed road and sewer improvements will strengthen infrastructure resilience to climate change, as well as make transportation more reliable for areas of persistent poverty and make transportation systems safer for everyday use by non-motorized travelers.

Project DART is a series of independent utility projects geared towards the culmination of three flood resiliency goals: 1) Maintain access to US 61 & US 67 (River Drive) until the Mississippi River overtops the state highway, 2) Once River Drive is no longer accessible, establish a permanent flood detour route up to flood stage 22.0 and 3) Ensure interstate access to the Centennial Bridge (access to the State of Illinois) and Arsenal Bridge (access to a United States Army military installation) during periods of flooding above stage 21. These goals can be accomplished by modernizing the local stormwater conveyance system through backflow prevention, storm sewer separation, targeted road raises in low lying areas, and improvements to local and state infrastructure.



Figure 1 | Division 2 project components

This project is split into multiple components. Some components have been completed, are under engineering design, or will begin design work later in the year. For the purposes of clarity, these will be referred to as Division 1 components. This RAISE grant application will bundle the remaining independent projects, referred to as Division 2 components, into a package that will

complete Project DART and its goals. A breakdown of Division 1 and 2 components are shown in the table below. The City has secured 100% of the funding for the Division 1 components. This request would fund Division 2 projects and comes with a strong commitment of a 25% local funding match, beyond the 20% requirement. This project will provide the region with safe transportation access that showcases environmentally innovative solutions to traditional riverfront challenges.

Division 1 Other Funds	Division 2 RAISE Grant Funds
Underground River & 4 th	Underground Marquette & River
Underground River & 3 rd	Repair Rockingham
Repair Rockingham Resurfacing	Repair Marquette
Repair Rockingham Reconstruction	Road Raise Rockingham Sections
Repair 3 rd & 4 th Streets	Road Raise 3 rd & LeClaire
Repair E. River Drive	Road Raise 2 nd & Gaines
	Road Raise Mound & River
	Safety 4 th & River Drive
	Safety 3 rd & River Drive
	Safety New Signals
	Road Raise Rockingham Sections

Transportation Challenges

The City of Davenport is located along 9 miles of the Mississippi River. The largest city of the Quad Cities in terms of population at 102,000, in a bi-state metro area of 428,000 residents, it is also the largest U.S. city on a river without structural flood protection. Davenport’s relationship with the river is unique in that the philosophy is to “let the river be a river,” even as neighboring cities to the east and south have built large flood protection structures. As members of the Mississippi River Cities and Towns Initiative promoting economic and environmental security and stability along the river corridor, the City understands that the actions taken in Davenport have cascading negative impacts on communities and habitats down river.

Recognizing that observed flood data highlight a trend observed across the United States – that the magnitude and duration of flood extremes have moved outside historic norms and patterns – the City understands the need to take action to prepare for increasing frequency and severity of flood events on the Mississippi River. Scientific consensus indicates that climate change will continue to influence storm events (and in turn, flood events) with a tendency towards the extremes. This conclusion applies to the upper Midwest, where the general projection is for a warmer and wetter climate pattern. In the face of these challenges, this community is planning for permanent adaptation and seeks to implement passive flood fighting solutions where possible.

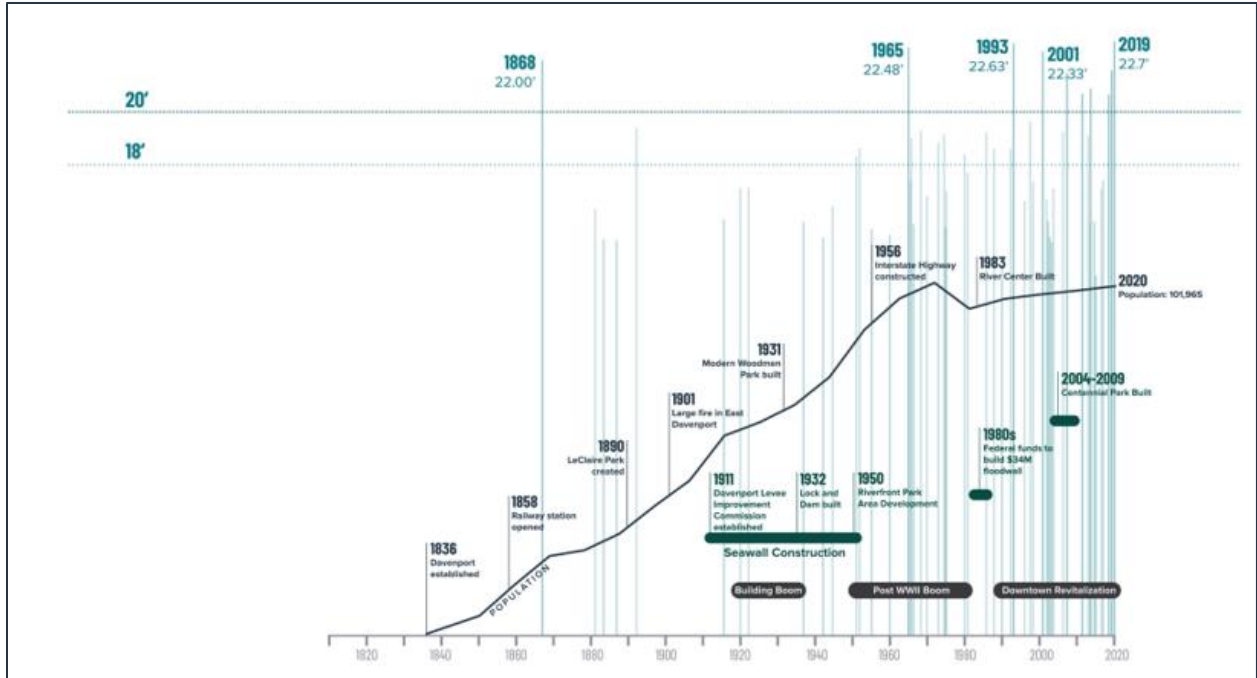


Figure 2 | Increase of Mississippi River Flood Events Over Time at Lock & Dam 15

Challenge 1 | US 61 & US 67 (River Drive) is inundated at early river stages. Currently, portions of River Drive along Marquette Street are impacted at stage 14.5. The river backs up through the existing storm sewer system and floods out of nearby intakes which inundates the state highway. To counter this action, City staff must perform temporary pumping to keep access open. If light to medium rain events occur during this period, the City must close River Drive’s outside lanes in the area as pumping cannot combat both rainwater and the Mississippi River. During heavy rain events, the entire intersection may have to be shut down for a period of time as water overtakes the roadway.



Figure 3 | Inundated intersection at Marquette & River Dr.

Challenge 2 | Existing detour routes cause confusion within the transportation corridor. Different areas of the City experience flooding at different intervals due to surrounding topography. As flood waters impact these areas, temporary detour routes are created and then go through multiple iterations depending on how high the river crest reaches in a given time period. This causes confusion to the general public and often vehicles find their way onto local

neighborhood roads not designed to handle the increase in traffic, or the public avoids the area entirely leading to a decline in business.

Challenge 3 | Access to interstate bridges requires substantial City involvement in order to remain open.

Within the areas between Marquette and LeClaire Streets are two bridges that lead to the State of Illinois. The first, Centennial Bridge, can be accessed through the intersection of 2nd and Gaines and provides access to and from Rock Island, Illinois. Arsenal Bridge can be accessed off of the intersection of 2nd and LeClaire,



Figure 4 | Intersections of River Dr. with 3rd & 4th Streets

therefore providing travel to the Rock Island Arsenal, a United States Army installation that garrisons the Joint Munitions Command, U.S. Army Corp of Engineers and the U.S. Army Sustainment Command. The Arsenal is the 2nd largest employer in the Quad Cities metropolitan region with 6,300 employees. To maintain access to these critical pieces of the transportation system, temporary flood fighting measures are undertaken by City staff. However, these

measures are not infallible as found out during the historic flood of 2019 when the temporary flood defense system located at River Drive and Iowa Street failed, inundating three blocks of Downtown Davenport and eliminating access to the Arsenal Bridge. On and off ramps to the Centennial Bridge are also affected during major floods. In 2019 the City installed those same temporary defense systems along Gaines Street to maintain access to the Centennial Bridge. However, multiple lanes were shut down due to water on the roadway.



Figure 5 | Gaines & 2nd Streets in 2019 flood

Addressing the Challenges

The three challenges mentioned above that the community faces during every flood event can be solved utilizing targeted solutions that are both environmentally and fiscally responsible. In addition, the modernization of key historic infrastructure will increase safety within the transportation corridor and allow the movement of goods and services throughout the community with minimal disruption.

Goal 1 | Keep River Drive open unassisted by City staff to river stage 17.5. An underground storm sewer improvement at the intersection of River Drive and Marquette will install a new segment of future bypass storm sewer and backflow prevention on the existing storm sewer to keep the roadway dry until the area is flooded via overland. This component will significantly reduce flood response from City operations and keep this area dry for an additional 3.5 feet of river flood stage. Utilizing historical data from the United States Army Corp of Engineers; if this improvement been in place over the last 20 years of flooding, the City's flood response and impacts to transportation would have been reduced by 446 days! The underground improvement

offers enormous benefits to keeping River Drive open with unimpeded access until it needs to be closed at river stage 17.5 due to overland flooding over nine blocks to the east.

Goal 2 | Develop a permanent flood detour route to stage 22. Closure of a primary thoroughfare (River Drive) requires detours, and the topography and layout of Davenport's streets limits the detour alternatives for traffic at the volume required. Eliminating sections of topographical challenges on select sections of streets will remove the need to constantly change detours routes depending on the crest of the river. This will create consistency throughout the transportation corridor, promote business activity, and install confidence in the system for the public. To create this new system; the following components will be constructed:

- Raise and reconstruct Rockingham Road between Washington & Sturdevant by ~2 feet
- Raise and reconstruct Rockingham Road between Marquette & Fillmore by ~2 feet
- Raise and reconstruct approximately 1,700 linear feet of East River Drive near the intersection of Mound Street by ~2.5 feet

Performing these three targeted projects will allow the City to create a permanent flood detour route that begins on the west side of the City at Interstate 280 or US Business 61 (West River Drive) onto Rockingham Road, a local arterial roadway. From Rockingham, the detour will transition to Marquette Street. Marquette Street will feed into 3rd and 4th Street. These two roadways serve as four-lane one-way arterial couplets. These lead to the intersections of 3rd/4th and East River Drive. A component of Project DART that is currently under engineering design (but not part of this application) will install backflow prevention on local storm sewers and construct a new storm sewer connection to handle local rain events. This underground improvement will prevent river water from inundating the roadway through the existing sewer system at river stage 17.5, and allow access up to river stage 22. From these locations, East River Drive will be accessible all the way to the east limits of the City.

To keep traffic and goods moving efficiently through the city during these major floods and to improve safety, critical detour routes need to be maintained to a safe level of service. The following components will ensure a safe detour route in a state of good repair:

- Rehabilitation of sections of Rockingham Road and sections of Marquette Street
- New Signalized Intersection at Rockingham and Marquette
- New Signalized Intersections at 3rd/4th and River Drive
- Reconfiguration of the geometry at the intersections of 3rd/4th and River Drive

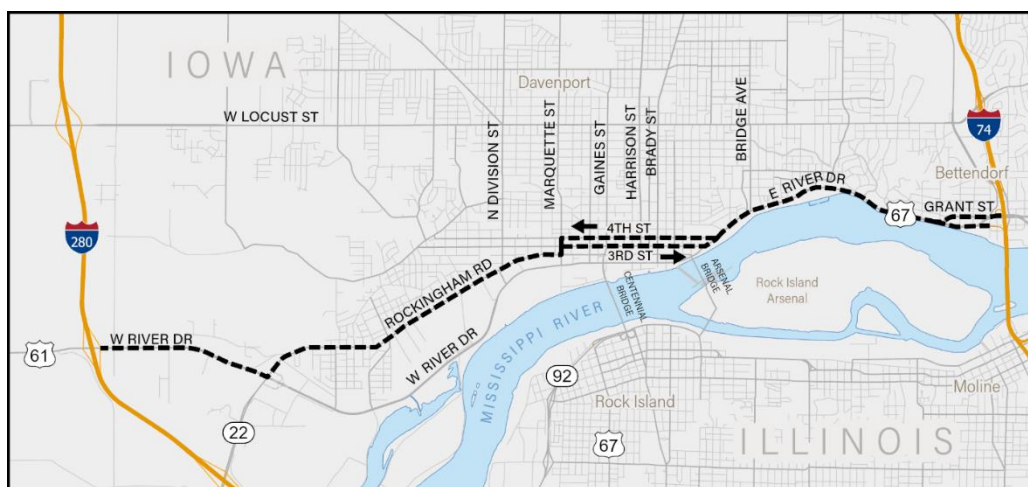


Figure 6 | Proposed permanent detour route

Goal 3 | Ensure interstate travel capability during large-scale flood events. Access to both the Centennial and Arsenal Bridges are critical for economic impact to businesses, individuals traveling to and from work as well as public safety purposes. While the City of Davenport may be separated from the City of Rock Island or the Rock Island Arsenal by the Mississippi River, the City has multiple intergovernmental agreements with those entities for public safety purposes. To ensure this access is guaranteed up to river stage 22, the following components will be constructed:

- Raise and reconstruct approximately 800 linear feet of LeClaire Street and 600 linear feet of 3rd Street by 2 feet
- Raise and reconstruct the intersection of 2nd and Gaines by 1.5 to 2.0 feet

PROJECT HISTORY

In 2019, Davenport experienced record flooding when the Mississippi River exceeded major flood stage for 103 consecutive days and reached a new record crest of 22.7 feet. Employing the City’s flood fighting plan 24/7 for almost 30% of the year placed an immense drain on City staff, re-allocated public resources away from other critical City functions, and cost the city more than \$1.5 million. Long-term detours and access issues challenged commuters, residents, and businesses across the region. Failure of temporary flood barriers on River Drive inundated a three-block section of downtown and inhibited commerce and access to the Arsenal Bridge. This disaster event galvanized public support to re-assess the City’s flood fighting approach with assistance from external consultants. The goal was to develop recommendations to improve, simplify, and enhance the City’s response to flood risk.



Figure 7 | Headline from July 1993 – “High water forces the closing of Arsenal Bridge”

In coordination with U.S. Army Corps of Engineers’ Silver Jacket Program and engineering firm HR Green, the City created its Mississippi River Flood Resiliency Plan (MRFPR), which was formally adopted in 2021. This plan values the riverfront as a place for the public and includes structural and non-structural flood mitigation approaches. Its recommendations are derived from engineering expertise, stakeholder input, and community feedback. Rooted in resilience, operations, equity, and public access, the plan serves as a road map to cost-effectively mitigate flood risk within the city and lives out the community’s continued commitment to living and working with the Mississippi River. Many of the components within Project DART and this application are derived from this engineering plan.

Table 1 – Flood Frequency History of Mississippi River at Lock & Dam 15

Flood Stage	Number of Calendar Days Above Stage		Percent of Total Flood Days in Last 20 years
	Full Record (1878-2020)	Last 20 years (2000-2020)	
18	273	142	52.0%
20	98	68	69.4%
22	18	7	38.9%
24	0	0	-

Selection of stage 22 for mitigation offers the City of Davenport a balanced, equitable, and cost-effective solution that is rooted in the City's rich history of co-existing with the river while also acknowledging that the Mississippi can always produce a larger or longer flood beyond what anyone can expect to affordably mitigate.

SECTION II | PROJECT LOCATION

GEOGRAPHICAL DESCRIPTION

The City of Davenport (2010 census-designated urbanized area 22366) is located on Iowa's eastern border, approximately halfway between Chicago, Illinois, and Des Moines, Iowa. Downtown Davenport lies on riverfront of the Mississippi River, which separates Iowa and Illinois. As the map below indicates, the project area serves as a hub for connections to existing transportation infrastructure. Two bridges provide access to interstate travel between Iowa and Illinois. The Centennial Bridge takes travelers into Rock Island, Illinois. The historic Arsenal Bridge, also known as Government Bridge, is the only Iowa access point to the Rock Island Arsenal, a significant manufacturing, logistics, and base support for the US Army and one of the largest area employers. The southern edge of the downtown is bordered by River Drive, which is part of the state highway system (US 67 and US 61), a primary east-west route and primary through-route, a primary connection to neighboring communities, and a connection to Interstate 280 to Interstate 74.



Figure 8 | Project location and regional context

The majority of the components in the scope of this project are located in census tracts 106 (ID 19163010600) or 109 (ID 19163010900), and recent improvements to Rockingham Road fall in tract 110 (ID 19163011000). Per the USDOT Areas of Persistent Poverty and Historically Disadvantaged Community Status Tool, these tracts all meet the criteria for Areas of Persistent Poverty, although they are not listed as Historically Disadvantaged Communities. In addition, tracts 106 and 109 are recognized as Opportunity Zones.

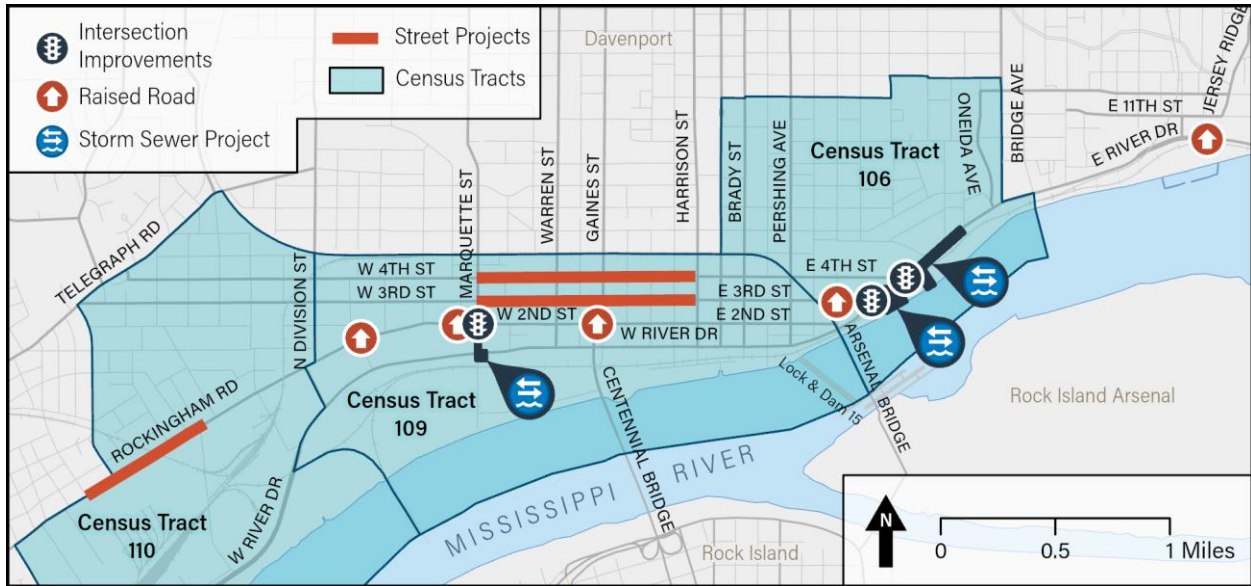


Figure 9 | Projects in relation to census tracts

REGIONAL IMPACT

Davenport faces distinct challenges because of the nature of River Drive as described above. Because it is located along the riverfront at low elevations, sections of River Drive become inaccessible during even moderate flood events. Properties south of River Drive with primary entrances on or near River Drive are particularly vulnerable to losing access, but even properties north of River Drive can become cut off when portions of 2nd Street are inundated during major flood events or impassable due to flood defense systems in place. The other critical corridors for travel in and around the City are the three major bridges across the Mississippi River. The I-280 Bridge, Centennial Bridge, and Arsenal Bridge each serve as primary access to the communities across the river. Maintaining access to bridge approaches is critical during major flood events.

A reliable, safe, and efficient transportation system is vital to the region’s economy and the well-being of our citizens. Infrastructure provides the backbone of that system, and both the public and private sectors have invested substantial resources in its development. The closure of a major thoroughfare during flood events impacts the entire five-county Bi-State Region Economic Development District. The primary industries in the region include manufacturing, defense, agriculture, food processing, and logistics. The area’s largest employers, such as Arconic, John Deere, Archer Daniels Midland (ADM), Eaton Cobham Mission Systems, the US Army Rock Island Arsenal, Amazon, Sterilite, Kraft Heinz, Nestlé Purina, and many others, rely on the transportation network for the delivery of goods.

SECTION III | GRANT FUNDS & SOURCES

Project DART is a combination of independent utility elements that can be separated into smaller projects in order to be accomplished over time as funds are available. Multiple Division 1 components have been funded through alternate means and are at various stages of development. The remaining components, Division 2, have been bundled into the RAISE grant application, which will complete the overall project and its goals. This section includes cost estimates for the both Division 1 and Division 2 components.

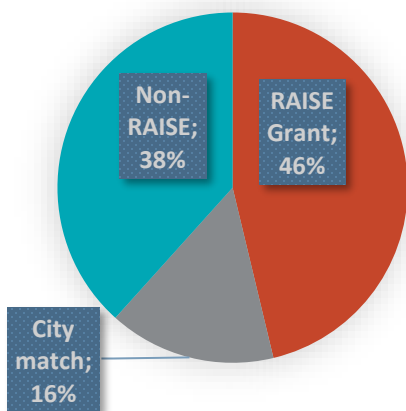
The cost estimates were prepared as part of the Mississippi River Flood Resiliency Plan and are shown below. Figures include a 15% contingency. Projects shown in blue text are already completed, underway, or funded awaiting construction.

The total of all components named within Project DART is \$29,328,877. The City has secured \$11,242,126 through other federal, state, or local funds. The remaining \$18,086,750 encompasses the scope of the RAISE grant, which includes design, construction, and inspection costs. The City of Davenport is requesting \$13,565,063 (75%) from the U.S. Department of Transportation RAISE Grant and has committed a 25% match in the amount of \$4,521,688. Documentation of funding commitment is included in Appendix D.

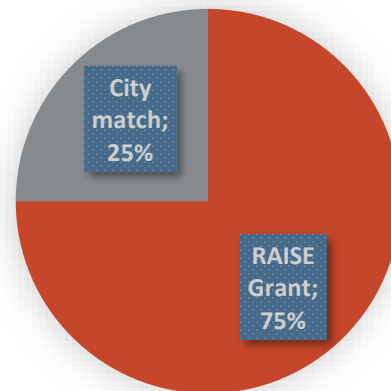
SUMMARY | Total Cost

Other Secured Funding	\$ 11,242,126	Division 1
US DOT RAISE Grant Funds	\$ 13,565,063	Division 2
City of Davenport Match	\$ 4,521,688	Division 2
Project DART Estimated Total Cost	\$ 29,328,877	

Project DART Total Cost
(Division 1 & Division 2)



Project DART Division 2



ELEMENT 1 | Remediate Underground Flooding – Marquette

Type	Status	Project	Estimate	Scope
Underground	Proposed	Marquette	<u>\$ 1,687,500</u>	Division 2
		Total Cost	\$ 1,687,500	
		FY 2022 RAISE Request 	\$ 1,687,500	

Independent Utility | This component of the project will gain 3.5 feet of flood avoidance for the area of River Drive at Marquette and will significantly reduce flood response at this location. Element 1 addresses Challenge 1.

ELEMENT 2 | Maintain Continuity – River Drive to Stage 22 and Establish Permanent Detour Route – I-280 to E. River Drive

Type	Status	Project	Estimate	Scope
Underground	Design	River & 3 rd	\$ 400,000	Division 1
Underground	Design	River & 4 th	\$ 3,700,000	Division 1
Road Raise	Proposed	River & Mound	\$ 2,700,000	Division 2
Street Repair	Proposed	Rockingham	\$ 1,056,250	Division 2
Street Repair	Complete	Rockingham	\$ 3,147,660	Division 1
Street Repair	Proposed	Marquette	\$ 1,118,000	Division 2
Street Repair	Design	3rd & 4 th Street	\$ 3,394,467	Division 1
Street Repair	Design	E. River Drive	\$ 600,000	Division 1
Road Raise	Proposed	Rockingham	<u>\$ 3,645,000</u>	Division 2
		Total Cost	\$ 19,761,377	
		FY 2022 RAISE Request 	\$ 8,519,250	

Independent Utility | As a group, these components will gain 4.5 feet of flood avoidance for the E. River Drive, allowing access to a permanent detour route in the event that River Drive must be closed due to flooding. This would maintain a direct route from I-280 to I-74 through the city without extended detours or reroutes through smaller city streets. Street repairs are needed to handle the traffic volume that would be required. Element 2 address Challenge 2.

ELEMENT 3 | Maintain Access to Interstate Travel – Arsenal & Centennial Bridges

Type	Status	Project	Estimate	Scope
Road Raise	Proposed	2 nd & Gaines	\$ 2,025,000	Division 2
Road Raise	Proposed	LeClaire & 3 rd	<u>\$ 2,565,000</u>	Division 2
		Total Cost	\$ 4,590,000	
		FY 2022 RAISE Request 	\$ 4,590,000	

Independent Utility | As a group, these components will maintain multi-modal access to travel between Iowa and Illinois and to the Rock Island Arsenal to stage 22. Element 3 addresses Challenge 3.

ELEMENT 4 | Traffic Safety Improvements – 3rd & 4th Streets

Type	Status	Project	Estimate	Scope
Safety	Proposed	New Signals	\$ 650,000	Division 2
Safety	Proposed	4 th St. & River Dr.	\$ 1,320,000	Division 2
Safety	Proposed	3 rd St. & River Dr.	\$ 1,320,000	Division 2
Total Cost			\$ 3,290,000	
FY 2022 RAISE Request			\$ 3,290,000	

Independent Utility | New pedestrian crossing signals at 3rd and 4th Streets. 3rd and 4th streets are part of the proposed permanent detour route, but the intersections with River Drive require reconfiguration/re-engineering to greatly reduce the risk of injuries, fatalities, and property damage. Element 4 supports Challenge 2.

SECTION IV | MERIT CRITERIA

SAFETY

The expected safety benefits include:

- Protecting non-motorized travelers or communities from health and safety risks
- Reduced fatalities and/or serious injuries
- Mitigation of systemic safety issues

The connections of East 3rd and 4th Streets intersect with River Drive at 35 and 48 degrees, respectively. Such acute angles impact driver sight distance as well as driver comfort while negotiating the turn. Current City code requires roadways to intersect at no less than 80 degrees nor greater than 100 degrees. This existing skew angle certainly contributes to the high number of sideswipe and lost control crashes experienced at this intersection. There have also been a large number of rear end crashes which could be attributed to these non-standard intersections. This project proposes to realign the roadways as shown in Figure 10, providing a more standard layout which would provide an intuitive driving experience for vehicle operators. These updates should reduce the average 7.5 crashes per year by 40 percent.

Pedestrian travel across 3rd and 4th Streets and River Drive is equally difficult. Again, sight and travel distance improvements are needed in the intersections to provide safe crossings by non-motorized users. With the realignment of the intersections, pedestrian crossing distances can be shortened. This minimizes the conflict time with vehicles while trying to access the adjacent YMCA, River Heritage Park, and the Mississippi River Trail. Making sure pedestrians are visible to vehicle operators is also critical to safety. By realigning the intersections and pedestrian crossings, operators no longer need to look over their shoulder to see pedestrians that may be entering the intersection. Situational awareness of all users of an intersection is critical to its overall safety.

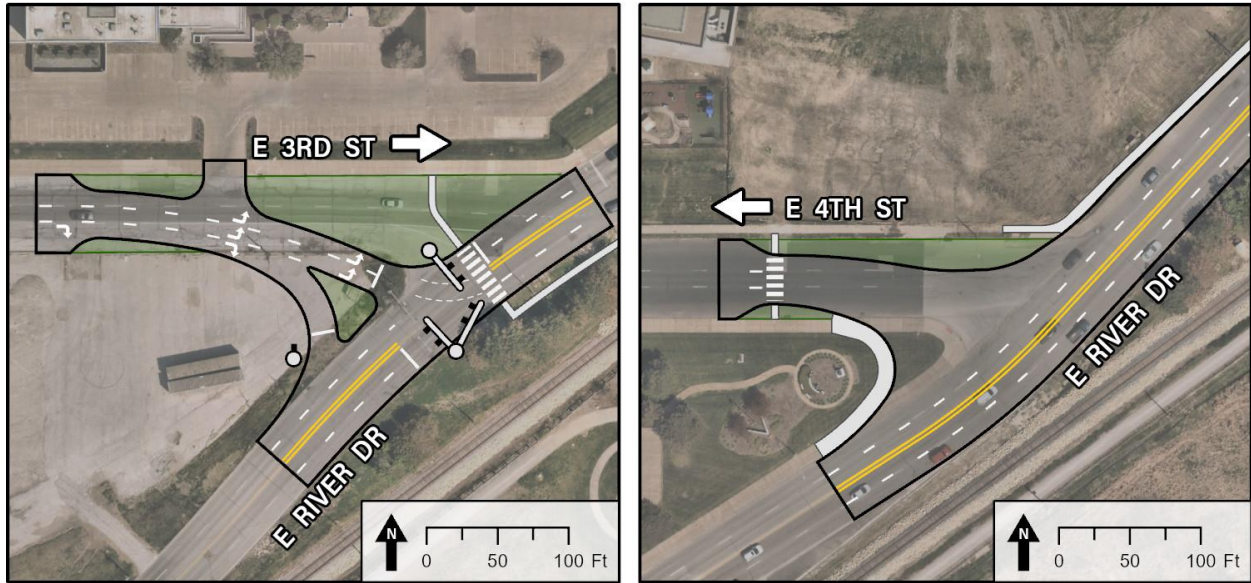


Figure 10 | Proposed layouts for intersections at 3rd St. & River Dr. and 4th St. & River Dr.

Installation of new signals and infrastructure at these intersections provides an opportunity to coordinate the signals and accommodate all users. Emergency services preemption upgrades will help Police, Fire, and Ambulance services to traverse the area expeditiously and minimize conflicts with other vehicles. Separate pedestrian timing movements would prioritize safe travel across the popular thoroughfares to access the adjacent amenities. Finally, coordinating the signals would provide efficient and safe movement of the vehicles and freight either traveling to, or through the downtown area.

Similarly, additional signal and pavement improvements would be necessary at the intersection of Marquette and River Drive. This intersection exhibits a high number of left turn and rear end accidents. Improving the coordinated timing would maintain efficient traffic flow and minimize crash opportunities caused by signal changes that surprise drivers. Finally, protected pedestrian crossings would provide safe passage across both Marquette Street and River Drive to access the Mississippi River Trail, Centennial Park, Davenport Skate Park, and The River's Edge multi-sport facility.

ENVIRONMENTAL SUSTAINABILITY

The expected benefits of these projects include:

- Reduced transportation-related air pollution during flood events
- Reduced vehicle miles travelled
- Improved resilience of at-risk infrastructure

As shown in the [Project Location](#) section of this document, River Drive is a vital, direct route connecting I-280 and I-74. This nine mile stretch experiences significant passenger vehicle and truck traffic. Table 2 shows 2019 Annual Average Daily Traffic (AADT) data collected by the Iowa Department of Transportation. River Drive is the most travelled road in the southern half of the city, and it is one of the five busiest/highest roads in the city by traffic volume.

Table 2 – Annual Average Daily Traffic (AADT) on River Drive / US 61 / US 67

Section of River Drive	Passenger	Truck	Total
Credit Island to Marquette	10514	486	11000
Marquette to Brown	10214	486	10700
Brown to Western	12671	629	13300
Western to Harrison	13701	699	14400
Harrison to Brady	13903	697	14600
Brady to 3rd	12932	668	13600
3 rd to 4 th	21263	737	22000
4 th to Mound	25383	717	26100
Mound to 6 th St (Bettendorf)	20163	837	21000

When a major flood event forces the closure of River Drive and causes detours for traffic, vehicle miles travelled and transportation-related air pollution increase. Alternate routes require motorists to detour around or through the city by 1) Interstate 280 and Interstate 80, 2) travel to the next nearest east-west highway, Kimberly Rd./US 6, or 3) take segmented local roads which are not designed to handle large increases in traffic.

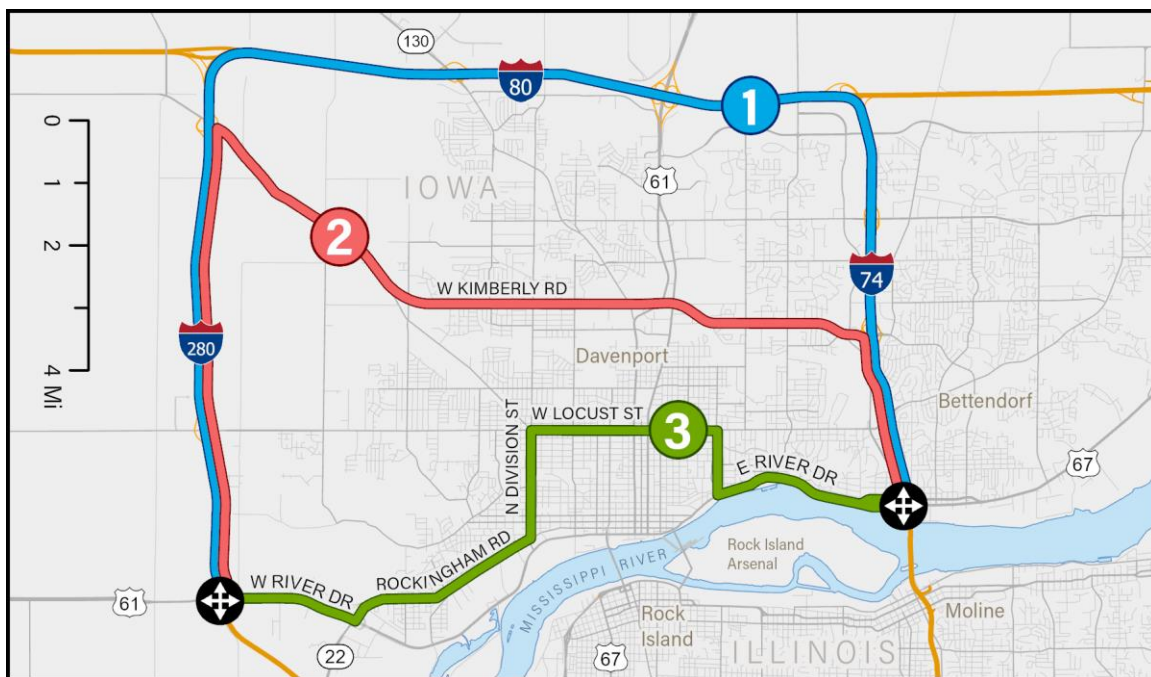


Figure 11 | Common alternate routes

As shown in Table 3, the first alternative adds 11 miles of travel in one direction when compared to River Drive. The second alternative adds 9 miles and significantly increases the travel time. The third alternative adds 2 miles but nearly doubles the travel time and would increase congestion in lower income sections of the city. Other factors, such as construction or school zones, could impact these travel times and are not included in these estimates. In addition to the added travel miles, each traffic stop potentially increases idle time, thereby increasing transportation-related air pollution. River Drive road closures and subsequent detours exacerbate

emissions due to idling vehicles and/or extended travel routes. Multiple studies have demonstrated that non-recurrent congestion and unreliable transportation systems increase emissions compared to free-flow conditions.

Table 3 – Alternate Route Travel Impacts

	Miles	Travel Time	Traffic lights	Approx. Current AADT
River Drive / US 67	9	15 min	18 (timed)	16300
1) I 280 to I -80	20	20 min	0	30000
2) Kimberly Rd / US 6	17.5	29 min	20	24000
3) Local roads	11	27 min	20	17000
Permanent detour	9	20 min	14	8000

When access to Arsenal Bridge was interrupted during the 2019 flood, Centennial Bridge was still accessible but only down to one lane in each direction. The loss of this access created long waits in traffic and caused many travelers to detour. Alternative routes via the next nearest bridges across the Mississippi River add approximately 10 miles and 10-20 minutes of travel time in each direction.

Implementing the proposed permanent flood detour and raising the approaches for Arsenal and Centennial Bridges (which will remain accessible via the detour route on 3rd & 4th Streets) will maintain a direct route connecting access to the I-280 Bridge, Centennial Bridge, Arsenal Bridge, and I-74 Bridge, while simultaneously minimizing travel miles, travel time, fuel consumption and emissions, and traffic congestion in parts of the city that are not designed for the additional volume. The time travel savings and vehicle operating costs are quantified in the Benefit Cost Analysis.

Many of the other components are intended to decrease the amount of active flood fighting necessary to protect public infrastructure by re-engineering for passive flood mitigation. The addition of backflow prevention, sewer separation, and road raises outlined in the [Project Scope](#) will increase the resiliency of otherwise at risk infrastructure.

QUALITY OF LIFE

The expected impacts on quality of life include:

- Enhanced unique characteristics of the community
- Increased accessibility for travelers including underserved, overburdened, or disadvantaged communities
- Removed barriers for individuals and communities to transportation, jobs, and business opportunities

As shown in the maps, images, and discussion above, River Drive is an artery to life in the region as it connects residents to business districts, Davenport to Bettendorf, and Davenport to the greater transportation network. Project DART helps ensure safe and secure access to amenities and services.

This project builds on the past two decades of more than \$500 million in public and private investment in Davenport’s downtown. This area, as well as the Village of East Davenport, are places where citizens gather for parades, festivals, conventions, holiday celebrations, and recreation and to experience history and culture. Additionally, many essential services are located downtown. Davenport City Hall and the Scott County Administrative Center are home to housing

assistance and other government services. A public social worker is available through the Davenport Library. The area is also home to many local businesses, community nonprofits, health services, and social services, along with art and entertainment venues and educational opportunities.

In recent years, Eastern Iowa Community College (EICC) completed the construction of a \$32 million urban campus facility in the heart of the downtown. It offers traditional two-year degrees, GED and ESL classes, and vocational training. The Quad Cities leading industry is manufacturing, and the EICC plays a vital role as a strategic partner with many of the region's manufacturing firms as they offer specialty training. Providing safe and alternate modes of travel for students is of paramount importance to continue this service for the manufacturing sector.



Figure 12 | Road closure on Rockingham Road due to flooding

Road closures and the loss of the ability to travel freely is disruptive – not only for those who live in the floodplain but for all who must travel by foot, public transit, or vehicle to get to work or to access services. One of the key takeaways from the community in the flood study was the importance of improving access during flood events, because flood events impact the daily lives of citizens, businesses, and visitors who rely on the transportation system.

Living with the river does not affect all citizens equally. The lives of those living in the neighborhoods on or near River Drive (population of tracts 106, 109 and 110: 7400; total population: 15,000) are disrupted more so than many others living and working in the region. These projects are primarily located in areas of persistent poverty where the ability to move with or without a car is crucial. Flood events impact vehicular traffic as mentioned in previous sections, but there are also impacts to pedestrian, bike, and public transit routes. By the nature of road design, reconstructing or raising the road surface will also require sidewalks and bike lanes to be improved/elevated. These projects increase accessibility for all travelers, but the impacts will be felt most by those who live in these areas. Cost and travel time savings are especially critical at this time when inflation and the costs of gas, food, and necessities are high.

As a bi-state community and metro area, interstate transportation access is also critical for the residents of this region, many of whom live and work on opposite sides of the river. Maintaining multi-modal access across the Mississippi is vital to access work, labor, and services. River Drive is an important part of transportation infrastructure as part of the City's transit route and a link from central business districts and western industrial districts to I-280/I-80 and I-74.

Each element of Project DART will maintain riverfront transportation access for individuals and the community to jobs, businesses, and services. These improvements will impact the quality of life by increasing accessibility and by removing transportation barriers during flood events for all.

MOBILITY AND COMMUNITY CONNECTIVITY

The expected benefits of these projects include:

- Increased affordable transportation options for underserved, overburdened, or disadvantaged communities
- Increased connectivity for motorized and non-motorized travelers
- Increased transportation choices for individuals to move freely with or without a car
- Increased movement of supply chains

As described in the [Quality of Life](#) section, the riverfront transportation system is vital to access work and services and to the movement of goods produced and consumed in the region. Project DART minimizes disruption and maintains access and connectivity of the transportation network during floods for those traveling by foot, bike, bus, or automobile.

The Ground Transportation Center (GTC), the public transit hub for the city, is located in middle of the downtown between River Drive and 2nd Street. Greyhound Lines, Burlington Trailways, and Davenport's public transit (Citibus) all operate from this location. Citibus routinely uses Rockingham Road and 2nd, 3rd and 4th Streets—primary east/west corridors in census tracts 106, 109, and 110—as well as Centennial Bridge.

Citibus uses E. River Drive for two routes that connect the downtown core, the location in the City with the highest number of residents without a personal vehicle, to significant employment centers and important community resources like hospitals, grocery stores, and other retail. Furthermore, several apartment complexes that primarily serve elderly residents or residents with disabilities use these routes as a connection to our downtown to access the many services and amenities mentioned in the [Quality of Life](#) section.

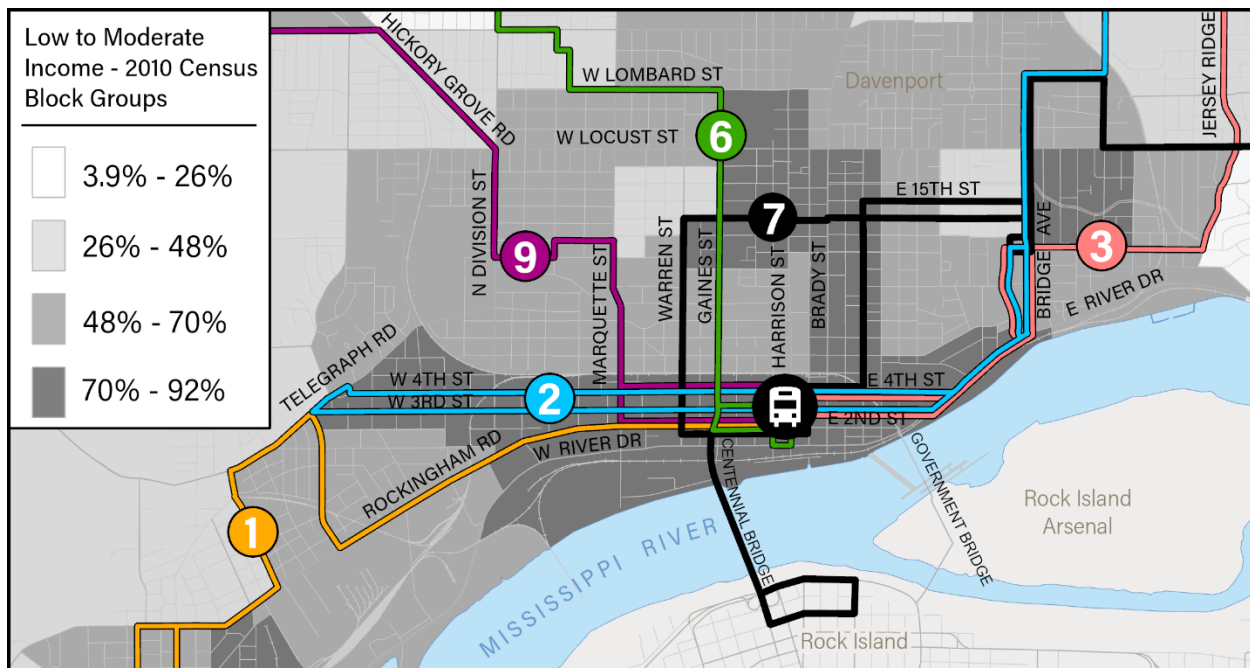


Figure 13 | Impacted Citibus routes and Low Income areas

Closures of River Drive due to flooding forces these routes to detours that put them three-quarters of a mile off-route. This causes delays in arriving to stops on time and negatively impacts travel

time reliability for those who depend on the transit system. The more significant impact of the detour is that it reduces coverage area. 99% of transit riders live within a quarter mile of a stop. When routes must be detoured, residents lose easy access to transit and must walk to reach the relocated stop—another undue consequence for those living in low income or poverty areas.

Because of the topography of the river valley, many of the neighborhood streets are simply too narrow and/or steep to reliably and safely allow a bus to travel. According to the EPA's EJScreen tool, these are neighborhoods are in the 94% percentile for Low Income, in which approximately 15% of the population does not have access to a personal vehicle. The proposed project will ensure that these neighborhoods receive the benefits of mobility to access employment, community resources, recreational opportunities, and medical care and that their mobility is not diminished by factors outside of their control.

Centennial Bridge and Arsenal Bridge have separate and protected pedestrian crossings. The road raise projects for both bridges will protect access to the bridge approaches for pedestrians and cyclists travelling between Iowa and Illinois or the Rock Island Arsenal. This will maintain additional transportation options other than a personal automobile or public transit during flood events.

The sewer work, road raises, and street repairs in the scope of this project will maintain and ensure the reliable movement of goods. The region's primary industries of manufacturing, defense, agriculture, food processing, and logistics rely on year-round access to arterial routes. These projects will not only maintain accessibility, but increase reliability of the routes. The addition of a permanent detour will reduce risk and disruption to local and regional supply chains.

Floods limit availability of the transportation network for those trying to travel in the region. Keeping River Drive open longer, developing a permanent flood detour, and ensuring interstate travel capability during flood events will maintain the reliability of affordable transportation options for the community. The region will see increased accessibility for all means—with or without a car.

ECONOMIC COMPETITIVENESS AND OPPORTUNITY

The expected benefits of these projects include:

- Improved system operations to increase travel time reliability, velocity of goods movement, and multimodal freight mobility
- Improved economic strength of regions and cities

The very nature of this project is to protect the economic competitiveness of Davenport and its local businesses, the interests of the region as a whole, and supply chains that impact the movement of goods across the country. Enhanced connections between communities, people, and businesses can shape the economic geography of a region. The regional economy is built on defense, manufacturing, food processing, agriculture, and logistics. Accessibility is key not only to the companies who have created jobs in the region, but to the individuals traveling to get to and from work. Major employers in the area include hospitals, grocery chains, educators, as well as manufacturing in agriculture, food, defense, aerospace, aluminum—essential work that can't be done remotely.

As discussed in the [Environmental Sustainability](#) section, closure of River Drive / US 61 creates long detours and extended travel times for passenger and truck traffic alike. Keeping this primary route open until stage 17.5 buys an additional 3 feet of flood protection and provides travelers many more days in the future that will not require detours. If these projects had been implemented 20 years ago, the road would have been accessible to normal traffic for at least 142 additional days (more if after-flood clean up closures were included).



Figure 14 | Inundated intersection of Mound St. & River Dr. near the Village of East Davenport

Major flood events impact the economy of the downtown as people tend to avoid road closures and detours. Downtown Davenport and the Village of East Davenport are two designated business districts along River Drive that are home to more than 270 local businesses, including retail stores, restaurants, entertainment, hotels, and others. When the temporary flood barrier failed in 2019, 42 businesses were closed or inaccessible due to flood waters. The Downtown Davenport Partnership estimated that the downtown economy alone suffered a conservatively-estimated \$30 million in lost revenue and wages. This figure does not take into account sales and wages that were not realized by those that were still open for business downtown or in the other areas of business along River Drive.

While these historic events obviously disrupt local businesses, the impact of the stage 18 to stage 20 floods can sometimes have an event greater compounding effect. Smaller scale floods are more frequent but still cause closures and detours, sometimes more than once a year. Because of the unreliability of the route during flood periods moderate and major, many citizens avoid the inconvenience of traveling along River Drive altogether. With a relatively small investment, the City can avoid preventable closures and their direct and indirect impact on the economy of the city, county, and region. Increased transportation reliability increases business confidence in developing and investing on and along the River Drive.



Figure 15 | 2019 flood looking East over Downtown Davenport and River Drive

Maintaining interstate access and access to River Drive during major flood events will improve travel time reliability, velocity of goods movement, and multimodal freight mobility. Perhaps the bigger impact will be on the improved economic strength of the city, the county, and the region as flooding increasingly impacts life in this area in the coming decades.

STATE OF GOOD REPAIR

This project will:

- Restore and modernize core infrastructure assets
- Address current or projected system vulnerabilities for underserved, overburdened, or disadvantaged communities
- Maintain assets in a state of good repair

Critical detour routes need to be maintained to a high-quality condition and a reasonably safe level of service. During flood events, traffic from River Drive, including large volumes of trucks, are redirected onto these streets. Most of these roads are not designed for these volumes and load distributions. As such, the City is in the process of prioritizing repairs to these roadways as part of regular CIP programming to ensure that they are sufficient not only for normal conditions but also for detour traffic loads expected during flood events.

Over the last five years, the City has made significant reinvestment to repairs along the proposed detour route. Within the Rockingham Road corridor, the City has spent over \$3.1 million. Along 3rd and 4th Streets, the City was able to secure a Surface Transportation Block Grant (STBG) for repairs to large sections of those one-way couplets. The estimated total cost for the work set just within the boundaries of the project's detour route is slightly under \$3.4 million. This Division 1 project is scheduled to begin preliminary engineering in summer 2022.

If Davenport's Project DART application isn't approved, the City will continue to repair its existing city-wide infrastructure with the resources it has available. Built within the current capital improvement plan is \$72.5 million over six years dedicated to street repair. This averages to approximately \$12.0 million a year. With an overall city-wide PCI Score of 43 and over 1,200 lane miles of street, it will take a significant amount of time to piece together what is proposed in the application as the street repair needs greatly exceeds the City's resources. Meanwhile, the state of the infrastructure and the transportation system along the project's corridor will continue to decline and deteriorate. This is why funding from the federal government for this project is important from a state of good repair perspective; it allows the City to complete all of the necessary repairs within the corridor in order to safely handle increased traffic volumes during times of flooding.

The City utilizes a data-driven approach when determining how to best use resources as it relates to rehabilitation efforts of the street network. The Iowa DOT, in partnership with the Center for Transportation Research and Education, drives every block segment of roadway in two year cycles and produces a Pavement Condition Index (PCI). This numeric figure allows the City to understand the life cycle of its pavement in a holistic sense and track it over time. Figure 16 shows how a generic deterioration model and how various treatments can and will extend the life cycle of a roadway if performed in a timely manner. The City frequently bids out contracts for preservation treatments such as microsurfacing and cape seal application on streets that can use this type of rejuvenation. In the current year, the cost of microsurfacing is 1/8th the cost of a typical mill and overlay; this number does not account for the additional base patching and sewer point repairs that typically occur for resurfacing projects. The funding for these types of treatments comes out of the City's annual capital improvement program.

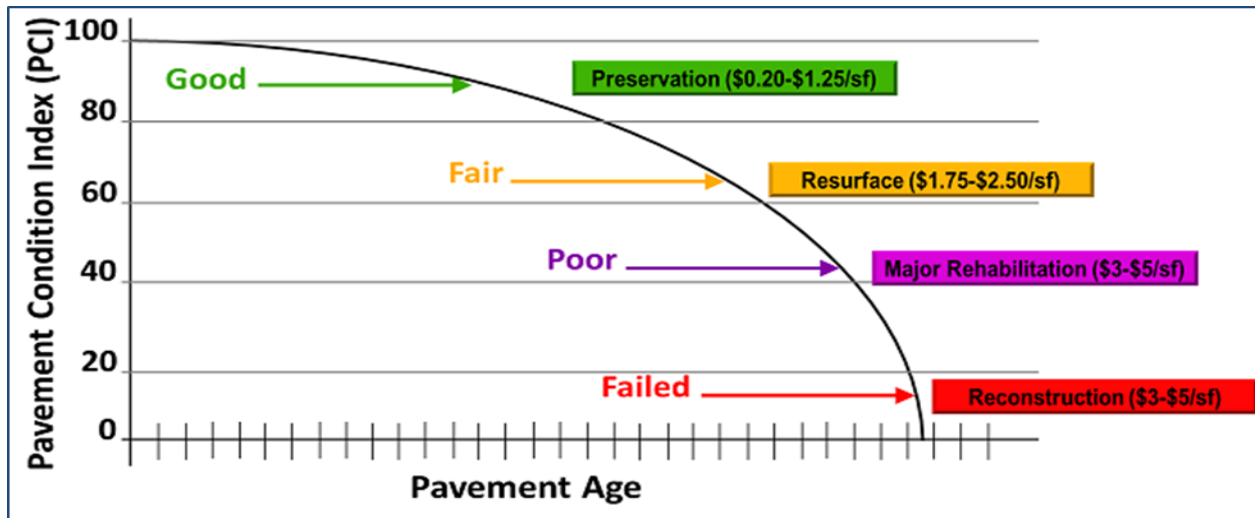


Figure 16 | Pavement Condition Index over time and cost of remediation

In addition to the pavement preservation techniques listed above, Davenport also has a Street Maintenance Division with an annual budget of \$7.6 million and a staff of 51.75 full-time employees. This division performs maintenance activities on street roadways such as crack sealing, pothole patching, gutter line repair, and short-range resurfacing. In-house crews will perform regular and small maintenance tasks on each roadway listed in the application.

PARTNERSHIP AND COLLABORATION

This project is expected to:

- Collaborate with other public and private entities

The Iowa Department of Transportation is working as a partner and in collaboration with the City for this overall initiative. River Drive is part of the primary system and the responsibility of the State of Iowa. To achieve the overall goals of the project, improvements and modernization to their infrastructure must be completed in addition to Davenport assets, such as underground storm sewers, that both affect and are partially located within their right-of-way. Close collaboration is essential throughout design and construction. Without such, the project cannot occur and both entities are resolute in this moving forward.

Another important community partner is the Quad City Chamber of Commerce (QC Chamber). Because the impact of flood events is felt beyond the riverfront, they are one of the leading and most vocal advocates for flood mitigation throughout this critical transportation corridor. Their support is representative of the broad and widespread support within the business communities that make up three self-supported municipal improvement districts (SSMID) of Downtown Davenport, Hilltop Campus Community Village, the Village of East Davenport, the city at-large, and the metropolitan region. The QC Chamber will provide much needed communication support to that community as design and construction activities are underway. The areas surrounding the three SSMID's are directly and indirectly impacted by these flood events. The organizations that represent those business corridors represent more than 340 businesses.

Letters of support from the following businesses, organizations, and elected officials will be sent electronically to RAISEgrants@dot.gov:

Application Partners

Iowa Department of Transportation
Quad Cities Chamber of Commerce

Municipal Improvement Districts

Downtown Davenport Partnership
Village of East Davenport

Local Utilities

Iowa American Water
MidAmerican Energy

Elected Officials & Regional Organizations

State Rep. Cindy Winckler, House District 90
State Rep. Phyllis Thede, House District 93
State Rep. Gary Mohr, House District 94
State Rep. Norlin Mommsen, House District 97
Visit Quad Cities
Bi-State Regional Commission

While close partnership and collaboration with the Iowa Department of Transportation and QC Chamber is essential and showcases the support and benefits of Project DART, the project also has support throughout the community. The flood mitigation components, which make up the vast majority of the project, came out of a year and half long planning process that culminated in the Mississippi River Flood Resiliency Plan. The process had three separate community feedback opportunities. Each opportunity included an online survey, paper survey, stakeholder meetings, open house meetings, and extensive outreach to local media. Regular updates were provided to the Mayor and City Council on numerous occasions at public meetings, as well as two public work sessions where elected officials could provide questions and thoughts on the process.

The most common takeaway from these community feedback sessions was the desire to maintain access to River Drive and afterwards, if necessary, detour routes to businesses and residences for as long as possible utilizing common sense solutions with big impacts. Support for underground sewer improvements and selected road raises garnered far more public support than traditional flood walls.

As the City continues to work towards the completion of Project DART, the community can follow its progress online from [the City's website](#), along with other flood mitigation projects that came out of the Mississippi River Flood Resiliency Plan. As these components develop, the City's communication staff will work closely alongside staff from the Quad City Chamber of Commerce to ensure both businesses and residents are kept up to speed on this community initiative. In addition to the existing website, the City frequently utilizes its social media platforms to promote project updates. It also uses AlertIowa, a free direct-to-consumer service that sends updates and notices to a subscriber's phone or email. It allows users the ability to choose what types of updates they wish to receive; for instance, residents can choose to receive updates on items such as flood projects, street closures, lane reductions, ward meetings, and volunteer opportunities. In short, the City has a number of methods in which to share information and news about the project with the public.

INNOVATION

The project will:

- Use practices that facilitate improved project delivery

The City of Davenport is extremely well positioned to deliver the project on schedule and on budget. To do so, the City will bring the following:

Divide and Conquer Strategy

The elements within this application (defined in Section III) have been divided into multiple work packages due to a combination of similar disciplines, sequencing of construction work, types of permits needed, and/or ability to accelerate a component in advance of others in order to gain its benefits for the public and transportation system as soon as possible. Each package will have its own engineering contract and will be bid separately for construction services. The packages are listed below:

- **Package 1** | This package will include the underground storm sewer improvements at Marquette and River Drive, new signals at the intersection of Marquette and River Drive, road raises on Rockingham Road, and reconstruction of Marquette from Rockingham to 4th Street. These improvements are located within a small physical area, and each element must be taken into consideration when designing another element. Due to this, the sequence of events from a construction standpoint must also be taken into consideration.
- **Package 2** | This item will only include the road raise at the intersection of 2nd and Gaines. The project is not located near any other components, will occur within local right-of-way, and needs minimal permits, all of which should lead to an accelerated design and construction schedule.
- **Package 3** | This bundle of work will include the road raise at the intersection of 3rd and LeClaire, reconfiguration and installation of new signals at the intersections of 3rd and River Drive, as well as the intersection of 4th and River Drive. Similar to Package 1, these projects are located adjacent to one another and that will need to be taken into account during design, specifically the road raises at 3rd and LeClaire and the reconfiguration of 3rd and River Drive. Construction sequencing and similar style permits also play a factor in bundling these items.
- **Package 4** | This package will include the road raise at the intersection of Mound and River Drive. The project is not located near any other components. It does require additional permits as most of the improvement is occurring within Iowa Department of Transportation right-of-way. The partnership the City has with the State DOT will play a critical factor in moving this item along quickly, once done so, it can be constructed in short order.
- **Package 5** | This item will include the road resurfacing along Rockingham Road. Similar to Package 2, the project is not located near any other components, will occur within local right-of-way, and needs minimal permits, all of which should lead to an accelerated design and construction schedule.

Grant Management

The City of Davenport is experienced in managing and reporting on federal and state grants. City staff frequently cooperates and has a positive relationship with agencies such as the Iowa Department of Transportation, Federal Highway Administration, Federal Aviation Administration,

Federal Transit Administration, Economic Development Administration, Federal Emergency Management Administration, and the U.S. Department of Housing and Urban Development. The City has received at least one grant from each of these organizations in the past few years and has completed successful audits.

Exceptional Partner Relationships

The various packages will require different permits depending on their location. The City has excellent partnerships with all regulatory bodies that may need to be involved. In addition, private utilities exist within this corridor, chief among them is gas and electric services through MidAmerican Energy and water through Iowa American Water. Each utility works with City staff on a routine basis, and each entity has provided a letter of support for the project. Any conflicts that may arise will be easily managed and corrected with no disruptions to the project schedule.

Shovel Ready

The difficult components of Project DART have already gone through the conceptual engineering process. These flood mitigation components were developed as part of the City's MRFRP and were successfully vetted as part of a lengthy public involvement process. If the grant application were to be approved, the City would move immediately into preliminary engineering of these sections, with construction soon to follow.

SECTION V | PROJECT READINESS

ENVIRONMENTAL RISK

As detailed below, the City is confident in its strong ability to deliver on the goals of Project DART. Its components were vetted through a comprehensive planning process that involved a number of stakeholders such as Davenport's general public, business community, Iowa Department of Transportation, United States Army Corp of Engineers, and others throughout the region. Though comprehensive in scope, the individual components of the project do not present a challenge to the limits of technical feasibility. All elements of the plan are well within the experience and abilities of any respectable engineering firm. Permitting does not represent a unique challenge and it has been accounted for in the overall project schedule. In fact, even if permits from outside agencies were to take longer than expected, the City is expected to be completed with all work prior to the RAISE grant's required end date of September 30, 2031 by over 5 years!

PROJECT SCHEDULE

All planning functions associated with Project DART have been completed. The City will initiate a Request for Qualifications (RFQ) for preliminary engineering on packages 1, 2, 3, and 4 (defined in the [Innovation Section](#)). Package 5 will be performed utilizing the City's engineering staff as this falls within their abilities. Each engineering contract will include obtaining any necessary permits prior to bids for construction services.

As mentioned above, components have been combined for efficiency purposes such as construction sequencing. For instance, Package #1 has four components that all occur within close proximity. Sequencing construction will allow a contractor to roll from one project into another while taking advantage of weather conditions. Street work in the Midwest can only occur from March to November, but underground storm sewer work can often occur at various stages within the winter months. Similarly, Package #3 ensures that the intersections along River Drive on 3rd and 4th are not being constructed at the same time due to their close proximity.

All necessary activities, including expenses, are scheduled to be complete well in advance of the RAISE grant program deadline for obligation of June 30, 2026. The project's schedule, listed in Appendix E, assumes the grant award occurs in September 2022 so that the City may bid out engineering services for the remainder of that year. Preliminary design and permitting will occur in 2023 with construction to occur in various stages in 2024 and 2025. The schedule also assumes time for proper project closeouts and any necessary audit information to be sent to the United States Department of Transportation.

REQUIRED APPROVALS

The project will require a series of local, state and federal permits. Those are listed below.

Local and State approvals: All bid packages will require a Floodplain Development Permit, COSESCO (Construction Grading Permit), and Right-of-Way Permit from the City of Davenport. Meanwhile, the components that occur within Iowa Department of Transportation's right-of-way, will require their own DOT permit. These items are expected and will not negatively affect the timeline of the project. As a partner and close collaborator in this initiative, the Iowa Department of Transportation will be a key member of the overall project team.

Federal Transportation Requirements: The City will follow all necessary and required permits as stipulated by the United States Department of Transportation; this includes NEPA permits. Since all activities within this grant request, and all of Project DART, occur within previously disturbed areas, the City will seek Categorical Exclusion permits for all items. Package 3 includes construction activities that will take place in the floodway, so the City will seek a permit from the United States Army Corp of Engineers. As these components occur within the primary road system and the Iowa Department of Transportation right-of-way; their assistance will be utilized in working with the USACE.

ASSESSMENT OF PROJECT RISK AND MITIGATION STRATEGIES

Project DART presents minimal risk. The anticipated risks are minor and can be managed as summarized below:

- **Procurement Delays & Grant Administration** | The City of Davenport is experienced in administering projects of this size and complexity, thus the project would pose no particular problem in procurement. In addition, the City has experienced construction project managers and inspectors who are familiar with federal and state projects and the documentation that comes with working on these grants. To showcase this level of familiarity with large-scale federal grant projects, listed are a few active projects. The City has two surface transportation program sponsored projects in close out (\$8.5M), one under active construction (\$9.1M), and one starting design in summer 2022 (\$9.2M). This is in addition to an EDA flood mitigation project that is also under design (\$12.5M).
- **Environmental Uncertainties** | The entire project is located within currently paved and previously disturbed land, therefore the City does not anticipate any environmental impacts that will require study or documentation before construction begins. In the unlikely event an issue is found, the proposed timeline easily allows for environmental issues to be resolved or mitigated.
- **Increase in Real Estate Acquisition Cost** | No real estate or right-of-way acquisition is anticipated to be required for this project.

- **Contingency in the Cost Estimate** | The components that make up this project are routinely designed by professional licensed engineers and performed by local contractors. Cost estimates are based on recent projects within City limits or prepared by the engineering firm who performed the Mississippi River Flood Resiliency Study. However, in order to allow for unforeseen site conditions the City has placed a 15% contingency in the estimate. If the project were to come in over budget and the contingency, the City will fund the remainder of the project.

SECTION VI | BENEFIT COST ANALYSIS

Each element of Project DART has been evaluated separately for cost and benefits. The collective benefits of the project total more than \$48 million with a total BCR for RAISE funds of 2.67. The calculations, assumptions, and data sources for each element are detailed in Appendix A.

Given the useful life of the components in the project scope, each evaluation assumed benefits of the recommended maximum analysis period of 30 years. The population of Davenport has remained relatively constant for the past 40 years, holding around 100,000, as has the population in the bi-state region at around 420,000. Traffic along the River Drive corridor has also remained relatively unchanged and, since population is fairly constant, traffic is projected to be steady in the coming decades.

The Mississippi River has exceeded stage 22 at Lock & Dam 15 four times in recorded history; in 1965, 1993, 2001, and 2019. In other words, Davenport has experienced three “50-year” floods in the last 50 years. As discussed in the

RAISE funds will contribute to \$48M in benefits with a BCR of 2.67

[Project History](#) section of this document, major floods on the Mississippi River are becoming more frequent and intense, but it is not possible to accurately predict flooding year to year. For this reason, the analysis used the 10 most recent years of historical data at Lock & Dam 15 to estimate future flood days in the coming decades.

Table 4 – Annual Exceedance Probability at Lock & Dam 15

Stage	18.8	22.0	23.6	26.1
Probability	0.1	0.02	0.01	0.002
	10-year flood	50-year flood	100-year flood	500-year flood

If these improvements were not completed, the City of Davenport anticipates continued disruptions to the transportation system during future flood events. Each project element and the evaluation of its benefits are described below.

Element 1 | Remediate Underground Flooding – Marquette

The no build alternative for this project is continued flood fighting at stage 14.5 at a cost of approximately \$3,000 per day of flood response. By completing the recommended project at River Drive and Marquette Street, the City will gain 3.5 feet of flood avoidance for the area. These improvements will significantly reduce active flood response at this location and thereby reduce the associated operating costs (labor, overtime, mobilization of equipment, etc.).

The City's current asset management software was implemented in 2015. Since then, \$263,000 have been spent on flood response at this location. In the past 20 years, this location experienced 446 days of flooding, at an estimated cost of \$1,350,000. Installation of a bypass storm sewer and backflow prevention will significantly reduce flood response. Based on recent flood experience, the City expects these updates will reduce active flood fighting for 551 days for an operations savings of \$1.7M. Perhaps more important than the dollar figure itself is the opportunity it provides to then move those resources to other areas as needed.

Element 2 | Maintain Continuity of E. River Drive to Stage 22 and Establish Permanent Detour

The no-build alternative for the intersections of River Drive with 3rd & 4th Streets is continued loss of access to the couplet at stage 17.5. In the past 20 years, the City has experienced 181 days and 161 days of flooding, respectively, at these locations. Completing the proposed backflow prevention on the storm sewer system will provide 4.8 feet of stage gain at the 3rd Street intersection and 4.6 feet of stage gain at the 4th Street intersection. The City anticipates that these improvements will reduce active flood fighting for 285 days in the next 30 years.

If no improvements are made at River Dr. & Mound Street, the City will continue active flood fighting beginning at stage 19.5. In the past 20 years, this location experienced 68 days of flooding. Elevating River Drive at Mound Street will provide 2.5 feet of stage gain and allow traffic to continue uninterrupted to stage 22. Based on recent flood experience, the City expects the proposed updates will reduce active flood fighting by 141 days in the coming decades.

The no-build alternative for the Rockingham Road and Marquette Street improvements is to detour vehicles to streets that are not designed for the required traffic volumes. The long-term consequence of these detours is continued deterioration of assets in areas of persistent poverty in a city struggling to maintain its streets in a state of good repair. The street repairs and road raises allow traffic to be redirected to the permanent detour, decreasing wear and tear on the roads as well as travel times and related emissions.

In combination, the backflow prevention, road raise, and street repair projects in Element 2 will allow the City to establish a parallel, permanent detour route in the event that W. River Drive must be closed due to flooding. The detour route will provide great benefit to those who live and work in the region by reducing travel times and vehicle operating costs during periods of major floods, quantified at \$23M and \$15.6M, respectively.

Element 3 | Maintain Access to Interstate Travel via Arsenal & Centennial Bridges

The no-build alternative for these projects would mean active flood fighting and/or loss of bridge access for floods over stage 21.5. If other barriers fail, as they did in 2019, Arsenal Bridge access is lost and Centennial Bridge access limited. In the past 20 years, the approach to Centennial Bridge experienced 12 days of flooding and Arsenal Bridge ramp experienced 56 days of flooding.

Completing the proposed road raises will maintain multi-modal access between Iowa and Illinois and to the Rock Island Arsenal to stage 22. Elevating the road surface at Gaines and 2nd Streets will eliminate the need to install temporary structures and reduce labor for road closures. The larger benefit is for those needing to travel across the Mississippi. Travel time benefits are estimated at \$3.6M and vehicle operating benefits at \$1.7M.

Element 4 | Traffic Safety Improvements at 3rd & 4th Streets

The no-build alternative for this element would mean continued risk of crashes due to the current design of the intersections of these streets with River Drive, as illustrated in Figure 10.

The proposed projects are expected to reduce the likelihood of fatalities, injuries, and property damage that occur at these busy intersections. For the period between 2014 and 2021, there were 60 reported injury crashes (noting that this period includes the closures during the 2019 flood) at the intersections of River Drive and 3rd & 4th Streets. Reconfiguring the intersections for follow current best practices is expected to result in a 40% crash reduction.

The benefits and costs of Project DART are summarized in Tables 5 and 6 below. In total, all of the components of Project DART have a BCR of 1.64. Looking only at the components which will be funded by the RAISE grant, the City expects a Division 2 BCA of 2.67 on the investment.

Table 5 – Project Benefits and BCR by Element

	Element 1 Marquette	Element 2 Stage 22' & Detour	Element 3 Bridges	Element 4 Traffic Safety
Safety				\$ 2,497,477
Travel Time		\$ 23,086,837	\$ 3,643,747	
City Operations	\$ 1,665,969			
Vehicle Operating		\$ 15,644,061	\$ 1,669,697	
Total Benefit	\$ 1,665,969	\$ 38,730,898	\$ 5,313,444	\$ 2,497,477
Total Cost	\$ 1,687,500	\$ 19,761,377	\$ 4,590,000	\$ 3,290,000
Total RAISE grant	\$ 1,687,500	\$ 8,519,250	\$ 4,590,000	\$ 3,290,000
BCR – Total	0.99	1.96	1.16	0.72
BCR – RAISE	0.99	4.55	1.16	0.72

Table 6 – Aggregate Total BCR for Project DART

Total Benefit	\$ 48,207,788	Total Benefit	\$ 48,207,788
Total Cost	\$ 29,328,877	Total RAISE funds (grant + match)	\$ 18,086,750
Total BCR	1.64	Total BCR RAISE	2.67

APPENDIX A

Detailed Benefit Cost Analysis

Mississippi River Flood Data

Historical Data | September 2010 - September 2020

Assumptions |

- Next 30 years of weather and floods in this area will be on trend with the recent decade compiled in the flood study

Data source(s) |

- USACE Historic Data For Mississippi River at Lock and Dam 15 (Rock Island,IL)

Number of days	3641
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2010-2020	Stage	14.5	15.5	16.5	17.5	18.0	19.0	19.5	20.0	21.0	22.0	23.0
	Days >= stage	450	317	203	116	95	61	47	39	11	4	0
	Percent of total days	12.4%	8.7%	5.6%	3.2%	2.6%	1.7%	1.3%	1.1%	0.3%	0.1%	0.0%

Next 30 years	1350	951	609	348	285	183	141	117	33	12	0
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Element 1 | Remediate Underground Flooding – Marquette

Benefit | Reduced Operating Costs

Assumptions |

- Cost of flood response per day can be averaged from past expenses
- Forecasted flood days between stage 14.5 - 17.5 will increase 10% in next 30 years

Data source(s) |

- City of Davenport Asset Management Software, 2015 (implementation date of software) through current
- USACE Historic Data For Mississippi River at Lock and Dam 15 (Rock Island,IL)

Historical Data for River Drive & Marquette Flood Response (2015 - present)

Tota Cost of Flood Response	Number of Response Days	Cost Per Day of Flood Response
\$ 263,000	87	\$ 3,022.99

	Days at Stage 14.5 - 17.5	Est. Operating Cost
Total record since 1878	917	N/A
Past 20 years	334	\$1,009,678
Next 30 years	551	\$1,665,969

Element 2 | Maintain Continuity of E. River Drive & Establish Permanent Detour

Benefit | Travel Time Savings

Assumptions |

- Future traffic levels for River Drive will be similar to current traffic levels (remain constant over time)
- 10 minutes of additional travel time for any detour (one way)
- Commercial vehicles have 1 occupant. Passenger vehicles use average occupancy.

Data source(s) |

- Iowa Department of Transportation Traffic Data – Annual Average Daily Traffic Volume
- Variables as provided in the USDOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs (March 2022)

Annual Average Daily Traffic on River Drive / US 61 / US 67

Section of River Drive	Passenger	Truck	Total
Credit Island to Marquette	10514	486	11000
Marquette to Brown	10214	486	10700
Brown to Western	12671	629	13300
Western to Harrison	13701	699	14400
Harrison to Brady	13903	697	14600
Brady to 3rd	12932	668	13600
3rd to 4th	21263	737	22000
4th to Mound	25383	717	26100
Mound to 6th St (Bettendorf)	20163	837	21000
<i>Average Daily</i>	<i>15638</i>	<i>662</i>	
<i>Average Annual</i>	<i>5,707,951</i>	<i>241,549</i>	

USDOT Recommended Hourly Values of Travel Time Savings

Personal	\$ 16.20
Business	\$ 29.40
All purposes	\$ 17.80
Commercial- truck	\$ 32.00
Commercial- bus	\$ 33.60

285 Days of closure 30 years

1.67 Average Occupancy All Vehicles

Value of Time Savings Savings = (value of time) * (change in trip time) * (affected trips)

VTTS _{passenger}	\$ 46,393	\$ 77,477	
VTTS _{commercial}	\$ 3,529	\$ 3,529	
VTTS _{dailytotal}	\$ 49,923	\$ 81,006	\$ 23,086,837
	one occupant	all occupants	30-year total benefit

Element 2 | Maintain Continuity of E. River Drive & Establish Permanent Detour

Benefit | Vehicle Operating Costs

Assumptions |

- Future traffic levels for River Drive will be similar to current traffic levels (remain constant over time)
- This location is impacted by flood water at stage 18.

Data source(s) |

Iowa Department of Transportation Traffic Data – Annual Average Daily Traffic Volume

Variables as provided in the USDOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs (March 2022)

Alternate Route Travel Impacts

	Miles	Additional Miles
River Drive / US 67	9	0
1) I 280 to I -80	20	11
2) Kimberly Rd / US 6	17.5	8.5
3) Local roads	11	2
Permanent detour	9	0

7.2 Average

Vehicle Operating Costs

Vehicle Type	Recommended Value Per Mile
Light Duty Vehicles	0.45
Commerical Trucks	0.94

Annual Average Daily Traffic on River Drive / US 61 / US 67

Section of River Drive	Passenger	Truck	Total
Credit Island to Marquette	10514	486	11000
Marquette to Brown	10214	486	10700
Brown to Western	12671	629	13300
Western to Harrison	13701	699	14400
Harrison to Brady	13903	697	14600
Brady to 3rd	12932	668	13600
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Mound to 6th St (Bettendorf)	20163	837	21000
<i>Average Daily</i>	<i>15638</i>	<i>662</i>	
<i>Average Annual</i>	<i>5,707,951</i>	<i>241,549</i>	

Operating Costs = (value per mile) * (ave. detour miles) * (affected trips)

OC _{lightduty}	\$	50,433	
OC _{commercial}	\$	4,458	
Total	\$	54,891	per day of closures

285 Days of closure 30 years

\$ 15,644,061 30-year total benefit

Element 3 | Maintain Access to Interstate Travel via Arsenal & Centennial Bridges

Benefit | Travel Time Savings

Assumptions |

- Future traffic levels for River Drive will be similar to current traffic levels (remain constant over time)
- 20 minutes of additional travel time (one way) via next closest river crossing (either I-280 or I-74 bridges)
- Commercial vehicles have 1 occupant. Passenger vehicles use average occupancy.

Data source(s) |

- Iowa Department of Transportation Traffic Data – Annual Average Daily Traffic Volume
- Variables as provided in the USDOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs (March 2022)

Annual Average Daily Traffic (AADT) on Bridges

Bridge	Passenger	Truck	Total
Centennial	30019	581	30600
Arsenal	N/A	N/A	7500
Interstate 280	17745	7355	25100
Exits at US 22	2169	461	2630
Exits at US 61	2169	474	2670
Interstate 74	66632	3068	69700
Exits to US 67	9099	401	9500

USDOT Recommended Hourly Values of Travel Time Savings

Personal	\$ 16.20
Business	\$ 29.40
All purposes	\$ 17.80
Commercial- truck	\$ 32.00
Commercial- bus	\$ 33.60

12 Days of closure 30 years

1.67 Average Occupany All Vehicles

Centennial Bridge

Value of Time Savings Savings = (value of time) * (change in trip time) * (affected trips)

VTTS_{passenger} \$ 178,113 \$ 297,448

VTTS_{commercial} \$ 6,197 \$ 6,197

VTTS_{dailytotal} \$ 184,310 \$ 303,646 \$ 3,643,747

one occupant all occupants 30-year total benefit for Centennial Bridge

Element 3 | Maintain Access to Interstate Travel via Arsenal & Centennial Bridges

Benefit | Vehicle Operating Costs

Assumptions |

- Future traffic levels for River Drive will be similar to current traffic levels (remain constant over time)

Data source(s) |

- Iowa Department of Transportation Traffic Data – Annual Average Daily Traffic Volume

- Variables as provided in the USDOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs (March 2022)

Alternate Route Travel Impacts

	Miles	Additional Miles
Centennial Bridge	1	0
1) I-280	12.9	11.9
2) I-74	8.9	7.9

9.9 Average

Vehicle Operating Costs

Vehicle Type	Recommended Value Per Mile
Light Duty Vehicles	0.45
Commerical Trucks	0.94

Annual Average Daily Traffic (AADT) on Bridges

Bridge	Passenger	Truck	Total
Centennial	30019	581	30600
Arsenal	N/A	N/A	7500
Interstate 280	17745	7355	25100
Exits at US 22	2169	461	2630
Exits at US 61	2169	474	2670
Interstate 74	66632	3068	69700
Exits to US 67	9099	401	9500

Operating Costs = (value per mile) * (ave. detour miles) * (affected trips)

$OC_{lightduty}$ \$ 133,735

$OC_{commercial}$ \$ 5,407

Total \$ 139,141 per day of closures

12 Days of closure 30 years

\$ 1,669,697 30-year total benefit for Centennial Bridge

Element 4 | Traffic Safety Improvements at 3rd & 4th Streets

Benefit | Safety

Assumptions |

- 40% crash reduction factor based on the geometry of the intersections

Data source(s) |

- Iowa Department of Transportation Crash Analysis Tool

- Iowa Department of Transportation Planning-Level Crash Reduction Factor (CRF) List

Rev. 5/14

Intersection or Spot Benefit / Cost Safety Analysis

Iowa DOT Office of Traffic & Safety

County: Scott Prepared by: Clay Merritt Date Prepared: Apr 8, 2022

Intersection: 3rd & River Drive and 4th and River Drive.

Improvement

Proposed Improvement(s): Reconfiguration of 3rd/4th at River Drive. These are two one-way couplets entering and existing onto a state highway. This also includes new traffic signals.

\$ 3,290,000 Estimated Improvement Cost, **EC** 30 Est. Improvement Life, years, **Y**
\$ 10,000 Other Annual Cost (after initial year), **AC** 40 Crash Reduction Factor (integer), **CRF**
\$ 172,920 Present Value Other Annual Costs, **OC** 4.0% Discount Rate (time value of \$), **INT**

$$OC = \frac{AC}{INT} \left(1 - \frac{1}{(1 + INT)^Y} \right)$$

\$ 3,462,920 Present Value Cost, **COST** = EC + OC

Traffic Volume Data

Source: http://icat.iowadot.gov 2020 Date of traffic count

Daily Entering Vehicles by Approach (or AADT / 2)



1.0% Projected Traffic Growth (0%-10%), **G**

57,100 Current Daily Entering Vehicles, **DEV**

$$TMEV = \frac{AEV}{-G} \left(1 - \left(\frac{1+G}{1} \right)^Y \right) / 10^6$$

Crash Data

2014 First full year --> 2021 Last full year 8.0 years, Time Period, **T**
0 Additional months values as of May 2014

<u>0</u>	Fatal Crashes	→	<u>0</u>	Fatalities @	\$4,500,000	\$ -
					\$325,000	\$ 975,000
<u>60</u>	Injury Crashes	→	<u>9</u>	Minor Injuries @	\$65,000	\$ 585,000
					\$35,000	\$ 560,000
<u>0</u>	Property Damage Only		<u>16</u>	Possible Injuries @ (assumed cost per crash)	\$7,400	\$ 444,000
<u>60</u>	Total Crashes, TA			-OR- enter all Property Costs of all crashes:	<u>\$ -</u>	Total \$ Loss, LOSS <u>\$ 2,564,000</u>

7.50 Current Crashes / Year, **AA** = TA / T 0.36 Crashes / MEV, Crash Rate, **CR**
CR = TA x 10⁶ / (DEV x 365 x T)
\$ 42,733 Cost per Crash, **AVC** = LOSS / TA

260.9 Total Expected Crashes, **TECR** = CR x TMEV \$ 2,497,477 Present Value of Avoided

3.00 Crashes Avoided First Year **AAR** = AA x CRF / 100 Crashes, **BENEFIT**

\$ 128,200 Crash Costs Avoided in First Year, AAR x AVC

104.4 Total Avoided Crashes, TECR x CRF / 100

$$BEN. = \frac{AVC \times AAR}{(INT - G)} \left(1 - \left(\frac{1+G}{1+INT} \right)^Y \right)$$

Benefit / Cost Ratio

Benefit : Cost = \$2,497,477 : \$3,462,920 = 0.72 : 1

APPENDIX B

Mississippi River Flood
Resiliency Plan

MISSISSIPPI RIVER FLOOD RESILIENCY PLAN

Davenport City Council approved a Flood Study and Resilience Plan for Davenport in November 2021.

The study provides a roadmap for future flood resilience and is the culmination of a nearly two-year planning effort carried out with substantial public input.

At a high level, the flood mitigation study provides a plan that:

- Meets community and City Goals
- Supports the existing riverfront park and land use plans
- Maintains the City's unique relationship with the Mississippi River
- Can be scaled or revised to accommodate future needs, constraints, and/or funding opportunities
- Offers incremental and transformational recommendations that balance respect for and retreat from the river
- Reflects a balanced and phased approach that can leverage multiple funding strategies to mitigate flood risk incrementally
- Balances public investment and individual responsibility

The adopted Mississippi River Flood Resiliency Plan can be [viewed online](#) in it's entirety at:

https://www.dropbox.com/sh/5iqzsulvyvj61o9/AACkiPTF_HIYaXzRjdmQYryOa?dl=0



APPENDIX C

Capital Improvement Plans

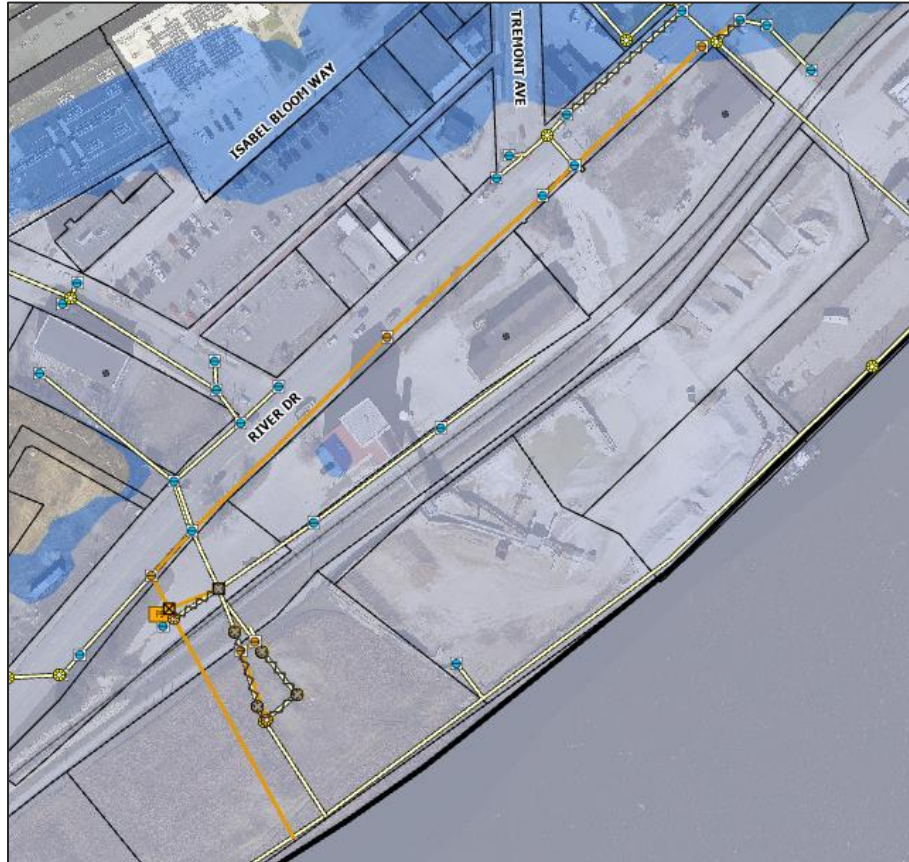
Note: Costs in this appendix may differ from the project costs outlined in Section III

1101 - E RIVER DRIVE & MOUND STREET ROAD RAISE PROJECT



Project Area	1
CIP Number	1101
Location	E River Drive & Mound Street
Treatment Type	Road Raise
Project Description	Elevate E River Drive in low areas that flood from storm sewer surcharge below the seawall elevation east and west of Mound Street.
Project Notes	Existing seawall protects area from overland flooding to stage 22. Total reconstruction length is approximately 1700 linear feet along Mound and River Drive. Passive flood risk reduction measure. Project does not address localized flooding in railroad ditch or Lindsay Park (north/south of River Dr). Future projects can address backflow prevention and storm sewer separation to reduce/minimize/eliminate localized flooding, as well as construction permanent pump capacity to pump the local stormwater runoff. May require overhead utility adjustments.
Stage Gain (ft)	2.5
Days of Benefit in last 20 years	68
Operations Impact	Maintain use of E River Drive until seawall overtopped. Current flood actions start by 19.5. Reconsider use/location of proposed HESCO alignment.
Height above existing grade (ft)	3
Construction cost	\$1,900,000
Total Project cost	\$2,400,000

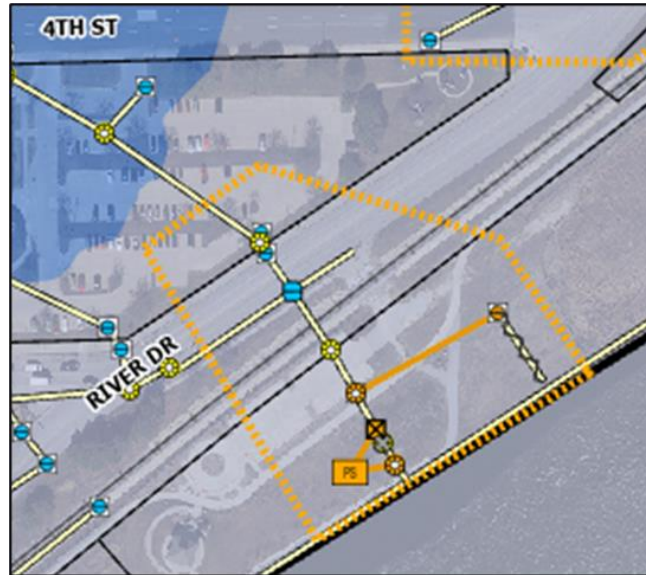
1103 - E RIVER DRIVE & E 4TH STREET UNDERGROUND PROJECT



Project Area	1
CIP Number	1103
Location	E River Drive & E 4th Street
Treatment Type	Underground
Project Description	Install backflow prevention on local storm sewer to keep E River Drive dry until seawall is overtopped. Includes new storm sewer connection to separate intakes below stage 22 between Carey and 4th from the upland area. Should be designed/constructed in conjunction with River Heritage Park projects.
Project Notes	Existing seawall protects area from overland flooding to stage 22. Future project could include construction of permanent pump capacity to pump local stormwater runoff when the gate is closed. The project will maintain vehicular access along E River Dr to 3rd/4th to stage 22.
Stage Gain (ft)	4.6
Days of Benefit in last 20 years	161

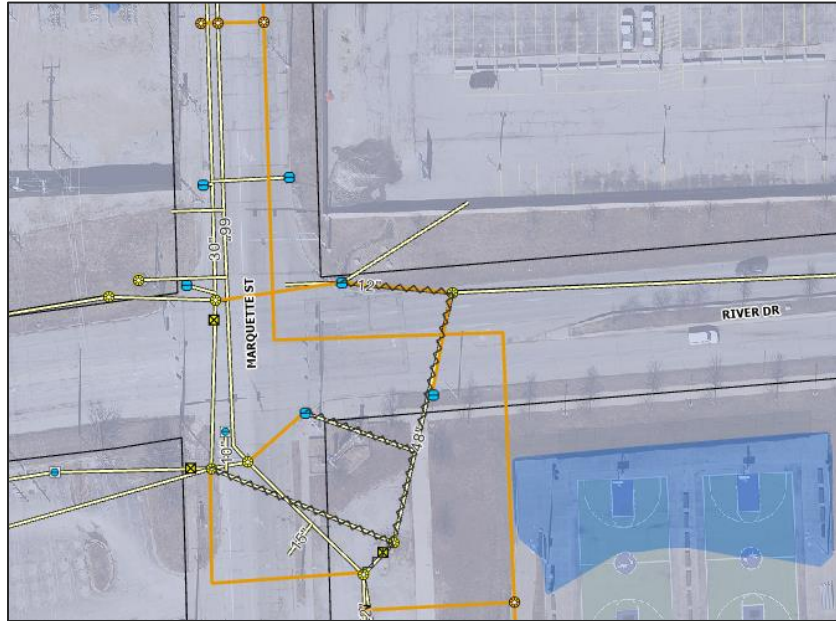
Operations Impact	Maintain use of East River Drive until seawall overtopped. Requires gate closure and temporary pump deployment. If gates are connected to centralized SCADA system, staff time/effort can be reduced.
Height above existing grade (ft)	N/A - Project does not include elements that change the ground surface or restrict the viewshed.
Construction cost	\$2,900,000
Total Project cost	\$3,700,000

1104 - E RIVER DRIVE & E 3RD STREET UNDERGROUND PROJECT



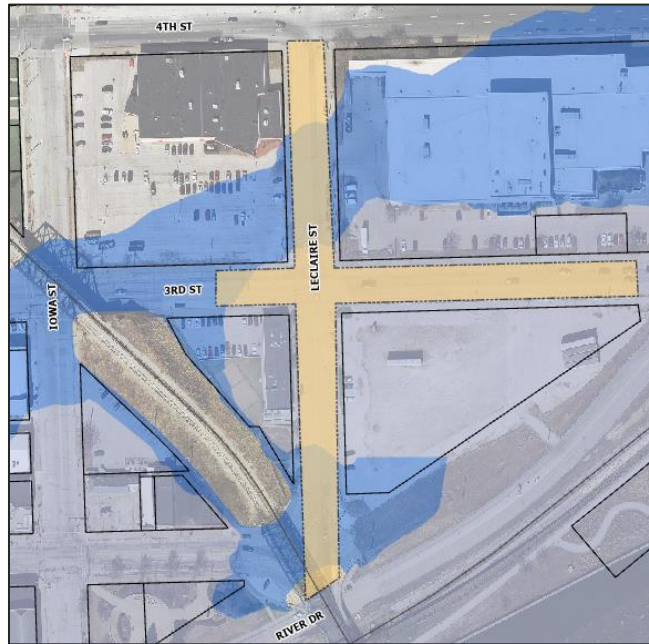
Project Area	1
CIP Number	1104
Location	E River Drive & E 3rd Street
Treatment Type	Underground
Project Description	Install backflow prevention on storm sewer to keep E River Drive dry until seawall is overtopped. Includes gatewell structure. Should be designed / constructed in conjunction with River Heritage Park projects.
Project Notes	Existing seawall protects area from overland flooding to stage 22. Future project could include construction of permanent pump capacity to pump local stormwater runoff when the gate is closed. The project maintains use of E River Drive until seawall overtopped.
Stage Gain (ft)	4.8
Days of Benefit in last 20 years	181
Operations Impact	Requires gate closure and temporary pump capacity to be deployed. If gates are connected to centralized SCADA system, staff time/effort can be reduced.
Height above existing grade (ft)	N/A - Project does not include elements that change the ground surface or restrict the viewshed.
Construction cost	\$300,000
Total Project cost	\$400,000

1301 - W RIVER DRIVE & N MARQUETTE STREET UNDERGROUND PROJECT



Project Area	3
CIP Number	1301
Location	W River Drive & N Marquette Street
Treatment Type	Underground
Project Description	Install segment of future bypass storm sewer and backflow prevention on existing storm sewer to keep W River Drive dry until area is flooded via overland.
Project Notes	Existing backflow prevention leaked in this area in 2019. Project will eliminate reliance on three leaky backflow prevention valves, simplify storm sewer connections, and backflow prevention operations. Project will provide immediate benefit to flood operations, and will be extended in Phase 2 projects.
Stage Gain (ft)	3.5
Days of Benefit in last 20 years	446
Operations Impact	Significantly reduce flood response for backflow prevention. Simplify from several gate closures and pump deployments to 1 central location. Current flood actions start by 14.5'.
Height above existing grade (ft)	N/A - Project does not include elements that change the ground surface or restrict the viewshed.
Construction cost	\$1,200,000
Total Project cost	\$1,500,000

2201 - LECLAIRE STREET ROAD RAISE PROJECT



Project Area	2
CIP Number	2201
Location	LeClaire Street
Treatment Type	Road Raise
Project Description	Raise LeClaire St from railroad abutment on Arsenal Bridge to intersection between 4th and LeClaire. Reconstruct 3rd Street to tie street into adjacent grade and to ensure new storm sewer intakes are above Stage 22.
Project Notes	Total reconstruction length is approximately 800 linear feet along LeClaire and 600 linear feet along 3rd. Passive flood risk reduction measure. Building at SW corner of 3rd & LeClaire has finished floor ~21.5 - consider property for potential buy out or individual mitigation to avoid need to put up HESCOS across 3rd and pump up to stage 22. May require overhead utility adjustments. The project will maintain access to E River Drive from 3rd and 4th during flood events up to stage 22. Must be completed in conjunction with larger project from Arsenal Bridge to River Drive west of Howell Street
Stage Gain (ft)	1.9
Days of Benefit in last 20 years	56
Operations Impact	Do not need to build HESCO wall along the east side of 3rd St and LeClaire intersection or deploy pumps at intersection. LeClaire open to 22 without need for intervention.

Height above existing grade (ft)	2
Construction cost	\$1,800,000
Total Project cost	\$2,300,000

GAINES STREET & 2ND STREET ROAD RAISE



Project Area	3
Location	Gaines Street & 2nd Street
Treatment Type	Road raise
Project Description	Elevate intersection of Gaines Street and 2nd Street
Project Notes	Requires additional detailed survey to identify exact amount and location of increase. 2nd Street west of intersection would not be passable; only maintains access onto Centennial Bridge from 2nd Street (from downtown) and Gaines.
Stage Gain (ft)	0.5
Days of Benefit in last 20 years	12
Operations Impact	Eliminate need to install HESCOs at 2 nd Street & Gaines Street, reduced labor for road closure detours.
Height above existing grade (ft)	1
Construction cost	\$1,400,000
Total Project cost	\$1,800,000

ROCKINGHAM ROAD RAISE



Project Area	3
Location	Rockingham Road
Treatment Type	Road raise
Project Description	Raise Rockingham Road in two locations: (1) between Washington Street and Sturdevant Street, and (2) between Marquette Street and Fillmore Street. Reconstruct intersection with Marquette Street to tie street into proposed grade.
Project Notes	Allows Rockingham Road and 2nd Street to remain the detour route up to flood stage 22. Several commercial and private property owners would likely need to provide a small amount of ROW for project.
Stage Gain (ft)	1.5
Days of Benefit in last 20 years	52
Operations Impact	Reduced labor for road closure detours.
Height above existing grade (ft)	2' (Marquette to Fillmore) 1-2' (Washington to Sturdevant)
Construction cost	\$2,600,000
Total Project cost	\$3,300,000

APPENDIX D

Funding Documentation

Resolution No. 2022-152

Resolution offered by Alderman Dunn.

RESOLVED by the City Council of the City of Davenport, Iowa.

RESOLUTION authorizing the submission of a RAISE Grant application to the United States Department of Transportation for grant assistance with enhancing and improving transportation access through flood mitigation efforts and infrastructure improvements.

WHEREAS, the City of Davenport (the "City") is a political subdivision organized and existing under the law and the Constitution of the State of Iowa (the "State"); and

WHEREAS, the City is committed to improving transportation access along a vital corridor through select flood mitigation strategies and infrastructure improvements; and

WHEREAS, the components of the project's application is dedicated to public use which the City will adequately maintain; and

WHEREAS, the City will commit \$4,521,688 (25% of eligible cost) for the project through local funds; and

WHEREAS, the City endorses the application and has estimated the total project cost to be \$18,086,750 and the grant request to be \$13,565,063.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Davenport, Iowa that staff is hereby authorized to prepare and submit an application to the United States Department of Transportation for RAISE Grant assistance to enhance and improve transportation access through flood mitigation efforts and infrastructure improvements in the amount of \$15,971,500.

Passed and approved this 23rd day of March, 2022.

Approved:



Mike Matson
Mayor

Attest:



Brian Krup
Deputy City Clerk



APPENDIX E

Project Schedule

PACKAGE 1
 Underground | Marquette & River Drive
 New Signals at Marquette & River Drive
 Road Raises | Rockingham Sections
 Repair | Marquette

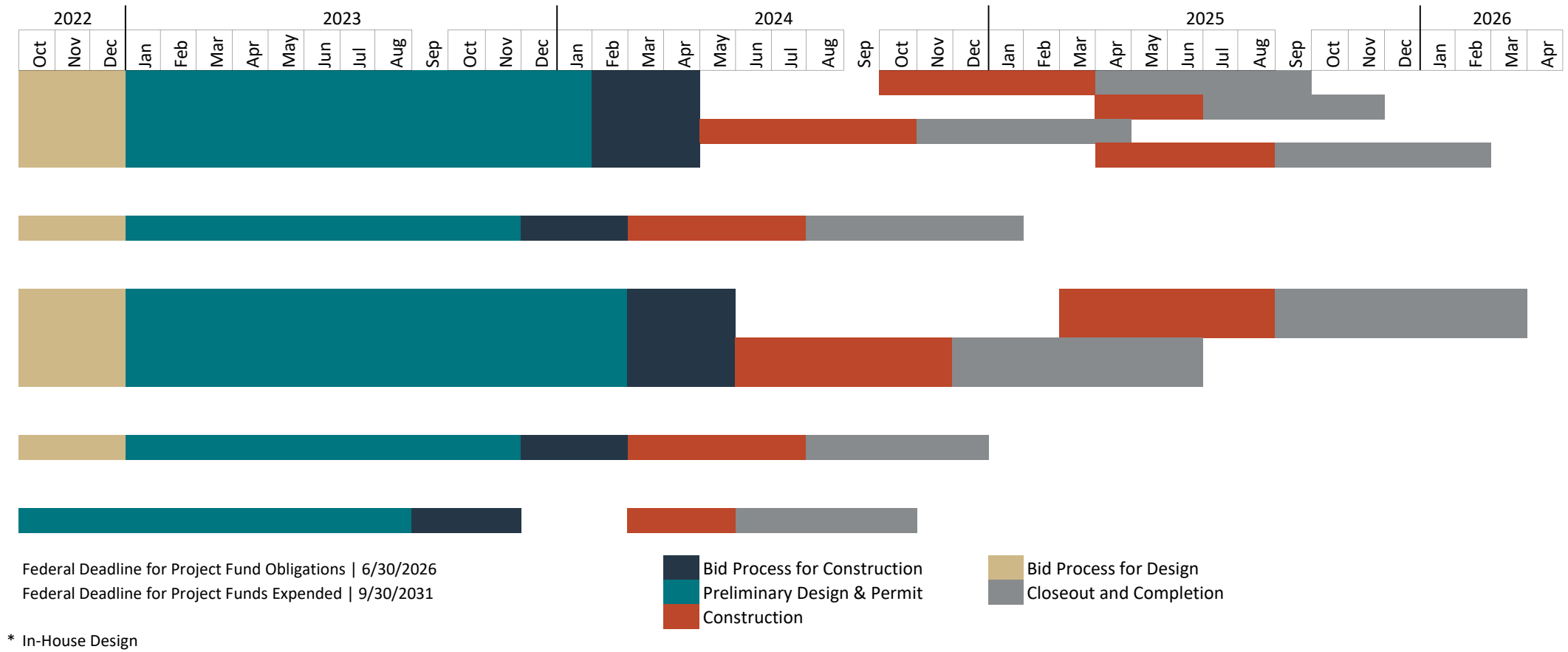
PACKAGE 2
 Road Raise | 2nd & Gaines

PACKAGE 3
 Road Raise | 3rd & LeClaire
 Safety | 4th & River Drive
 Safety | 3rd & River Drive
 Safety | New Signals

PACKAGE 4
 Road Raise at Mound & River Drive

PACKAGE 5
 Repair | Rockingham*

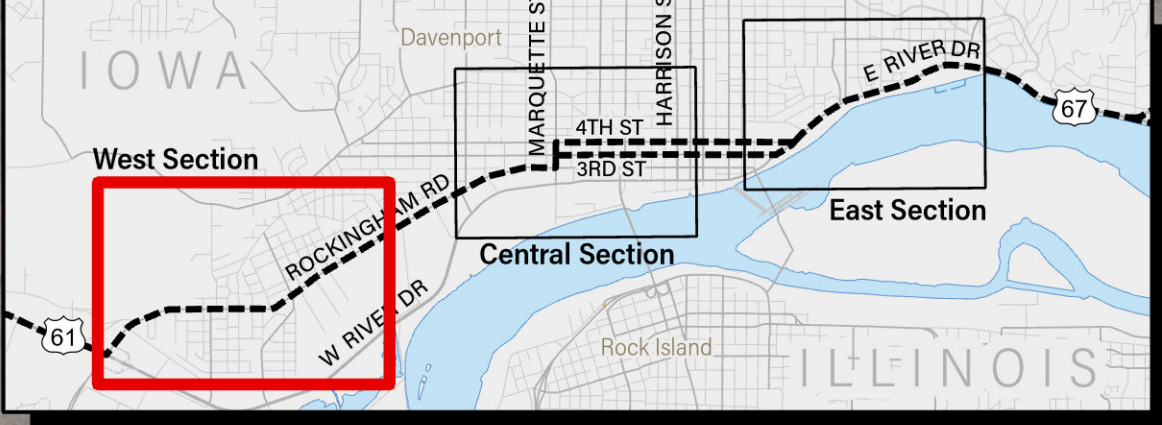
NOTES
 Federal Deadline for Project Fund Obligations | 6/30/2026
 Federal Deadline for Project Funds Expended | 9/30/2031



APPENDIX F

Project Maps

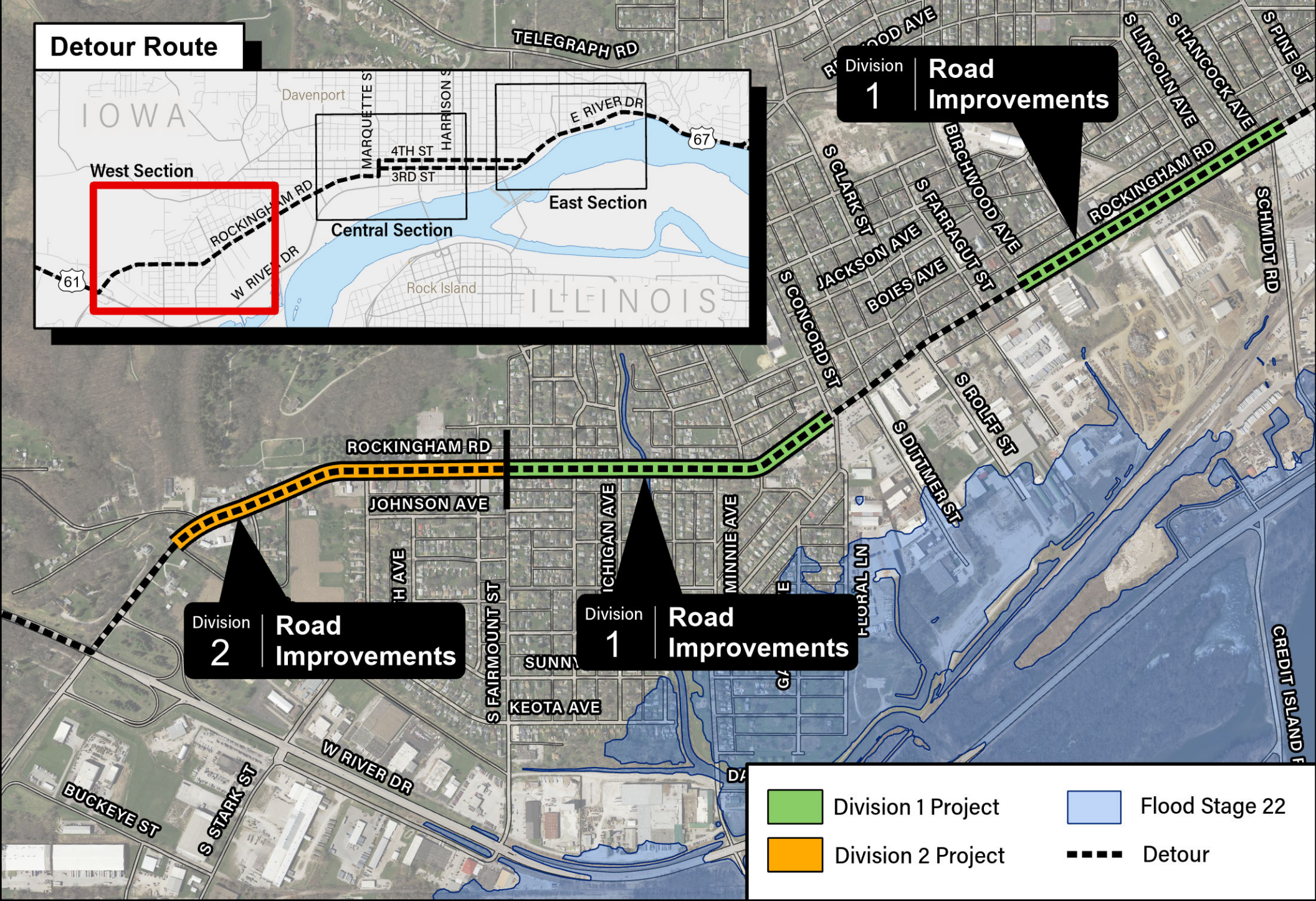
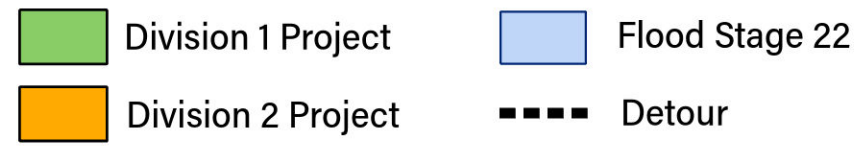
Detour Route

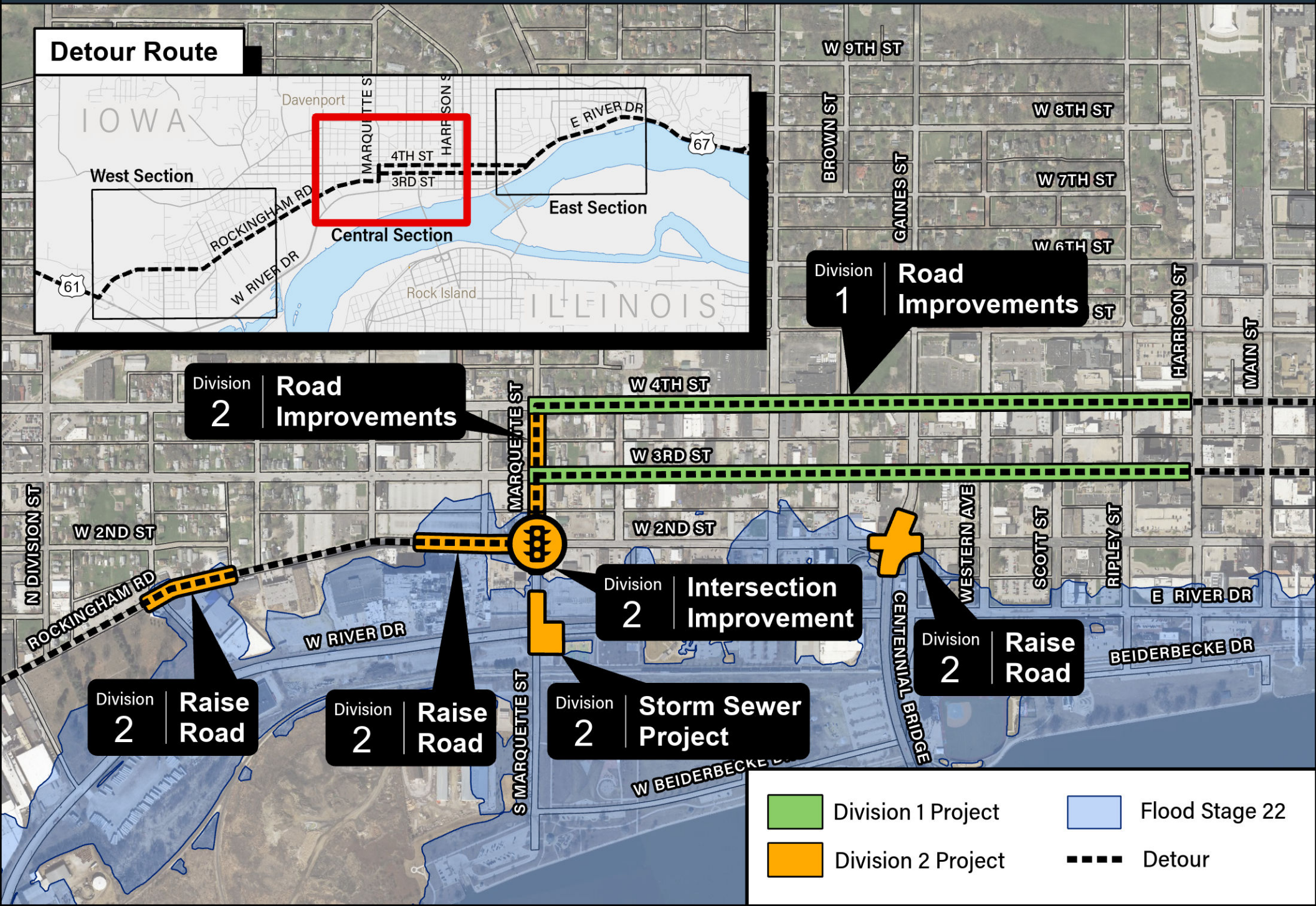
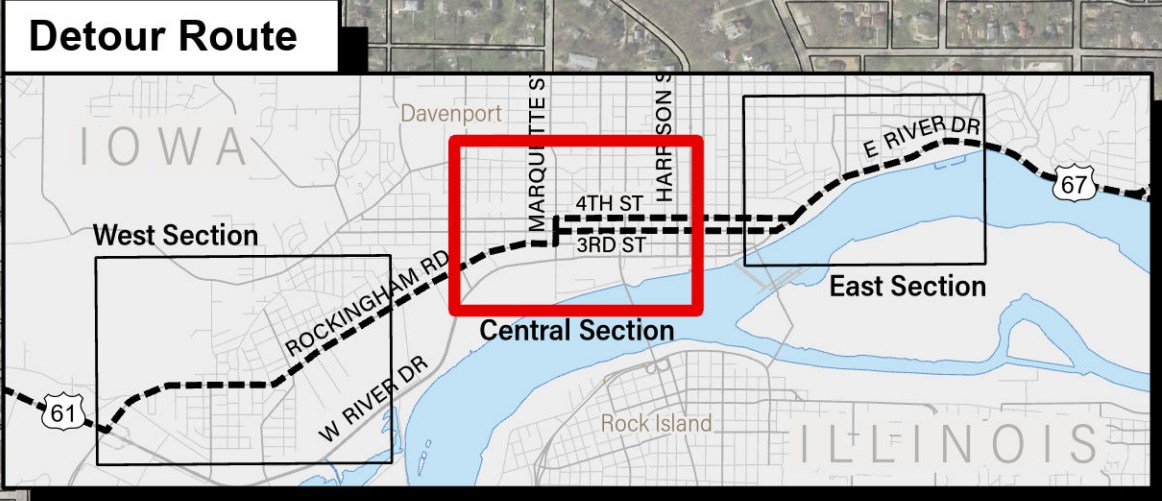


Division
1 | **Road Improvements**

Division
2 | **Road Improvements**

Division
1 | **Road Improvements**





Division 1
Road Improvements

Division 2
Road Improvements

Division 2
Intersection Improvement

Division 2
Raise Road

Division 2
Raise Road

Division 2
Raise Road

Division 2
Storm Sewer Project

- Division 1 Project
- Division 2 Project
- Flood Stage 22
- Detour

