



# City of Muscatine

ITEM NUMBER 2022-372

## AGENDA ITEM SUMMARY

DATE: 10/6/2022

### STAFF

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Carol Webb, City Administrator  
Brian Stineman, Public Works Director  
Pat Lynch, City Engineer

### SUBJECT

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Request to Submit a Railroad Crossing Elimination Planning Grant Application for a Proposed Rail-Highway Grade Separation at the intersection of Dick Drake Way in Southwest Muscatine

### EXECUTIVE SUMMARY

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The City of Muscatine proposes to submit a Railroad Crossing Elimination Planning Grant application for the purpose of obtaining funding to be used for engineering and plan development of a rail-highway grade separation at the intersection of Dick Drake Way. The proposed grade separation will mitigate current and future safety risks by reducing the potential for train-automobile and train-pedestrian and cyclist conflicts while also decreasing travel delays during train crossing events.

The Railroad Crossing Elimination Grant Program is funded through the Federal Infrastructure Investment and Jobs Act. The City is working with HDR Consulting (funded by CP) to develop the grant application. Should the City receive the planning grant, the City will pursue a construction grant for the grade separation.

### STAFF RECOMMENDATION

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Staff recommends approval.

### BACKGROUND/DISCUSSION

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In October 2021, CP and Kansas City Southern (KCS) filed an application with the U.S. Surface Transportation Board in which CP sought authorization for the acquisition of KCS. The merger was finalized by both railways in December 2021 while final approval from the Surface

Transportation Board is expected by early 2023. The merger of these Class I railways would result in the only end-to-end rail network connecting Canada with Mexico, by way of the United States.

Kansas City Southern Railway's former track rights for the mainline located in Muscatine transfer to CP under the terms of the merger. This transfer is expected to have a significant impact on rail operations within Muscatine, especially at the community's at-grade highway-rail crossings. The City has entered into an agreement with CP to provide \$3 million to mitigate the impacts of the projected increase in train traffic, a portion of which will be utilized as a 20% match for a grant application to construct a grade separated crossing at Dick Drake Way. CP funded a grant writer to assist with grant applications for the proposed crossing.

The City now requests City Council approval submittal of a Railroad Crossing Elimination Planning Grant application for the purpose of obtaining funding to be used for the engineering and plan development of a rail-highway grade separation at the intersection of Dick Drake Way. The proposed grade separation will mitigate current and future safety risks by reducing the potential for train-automobile and train-pedestrian and cyclist conflicts while also decreasing travel delays during train crossing events.

A concept drawing of the proposed grade-separation is included in the attached grant application.

### **CITY FINANCIAL IMPACT**

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The total cost of the planning phase of the Dick Drake Way rail-highway grade separation project is \$799,000. The City is requesting \$639,200 in Railroad Crossing Elimination Planning funds and will provide a 20% local match (estimated at \$159,800) through financial support from CP per the terms of the City/CP Community Investment Agreement.

### **ATTACHMENTS**

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1. Railroad Crossing Elimination Grant Application

## Project Title

**Keep Muscatine Moving**

## Applicant

**City of Muscatine, Iowa**

Federal funding requested under this NOFO	\$728,400
Proposed Non-Federal Match	\$182,100
Does some or all of the proposed Non-Federal Match for the total project cost consist of preliminary engineering costs incurred before project selection?	No
Other sources of federal funding, if applicable	Not applicable
Total project cost	\$910,500
Was a Federal Grant Application previously submitted for this project?	No
City where the project is located	City of Muscatine, Iowa
Congressional District(s) where the project is located	2 <sup>nd</sup> Congressional District of Iowa
Is this project Identified in <ul style="list-style-type: none"><li>• The freight investment plan component of a State freight plan, as required under Section 70202(b)(9)</li><li>• A State rail plan prepared in accordance with Chapter 227</li><li>• A State highway-rail grade crossing action plan, as required under section 11401(b) of Passenger Rail Reform and Investment Act of 2015 (title XI of P.L. 114-94).</li></ul>	Not currently identified in the specified plans
Is the project located in a rural area or Tribal Land?	Rural area
Is the project eligible for a funding set-aside in Section B.1.?	Planning and Rural set-asides
If the project is located in a rural area or Tribal Land, is the project located in a county with 20 or fewer residents per square mile, according to the most recent decennial census?	No ~100 residents/sq mi
U.S. DOT Crossing Number(s) (if applicable)	393258B
Is the project located on real property owned by someone other than the applicant?	No



## Contents

Section 2 – Project Summary.....	1
Section 3 – Project Funding .....	2
Section 4 – Applicant Eligibility .....	3
Section 5 – Detailed Project Description.....	3
Section 6 – Highway-Rail Grade Crossing Safety Information and Education Programs .....	10
Section 7 – Project Location.....	10
Section 8 – Grade Crossing Information.....	12
Section 9 – Evaluation and Criteria .....	13
Section 10 – Safety Benefit .....	18
Section 11 – Alignment with USDOT Strategic Coals .....	20
Section 12 – Project Implementation and Management.....	21
Section 13 – Environmental Readiness.....	22



## Section 2 – Project Summary



The City of Muscatine, in collaboration with Canadian Pacific (CP), submit this Planning grant application for the purpose of obtaining funding to be used for the engineering and plans development of a rail-highway grade separation at the intersection of Dick Drake Way with CP, Ottumwa Subdivision, Mile Marker 222.35 in the southwest part of the community.

Currently, this at-grade crossing poses a safety risk to travelers due to potential train-automobile and train-pedestrian / cyclist conflicts while also causing travel delays during train crossing events. Informed through a planning best practice approach, this grade separation will seek to address the challenges posed by the at-grade crossing, which include the removal of the barrier within the community created by rail traffic, as well as the need to enhance trail connectivity within the region through the construction of bicycle and pedestrian facilities.



This grade separation project aims to improve traffic safety through reducing train-automobile and train-pedestrian/cyclist conflicts that could result in collisions, while reducing automobile emissions resulting from vehicle stoppages during train crossing events. Supplementing these anticipated benefits to travelers are the potential economic gains to the local freight system as fewer delays of goods are expected under this grade-separation project.

## Section 3 – Project Funding

Task #	Task Name / Project Component	Cost	Percentage of Total Cost
1	Detailed Project Work Plan, Budget, and Schedule	\$45,525	5%
2	Conceptual Design	\$136,575	15%
3	Environmental Review	\$318,675	35%
4	Preliminary Engineering (30% Design)	\$364,200	40%
5	Final Performance Report	\$45,525	5%
<b>Total Project Cost</b>		\$910,500	100%
<b>Federal Funds Received from Previous Grant</b>		\$0	0%
<b>Federal Funding Request under this NOFO</b>		\$728,400	80%
<b>Non-Federal Funding / Match</b>		<ul style="list-style-type: none"> <li>• Cash: \$182,100</li> <li>• In-Kind: \$0</li> <li>• Preliminary engineering costs, consistent with Section C.2:</li> </ul>	20%
<b>Portion of Non-Federal Funding from the Private Sector. Please list amounts per source</b>		\$50,000 by Canadian Pacific	0%*
<b>Portion of Total Project Costs Spent in a Rural Area or on Tribal Lands</b>		\$910,500	100%
<b>Pending Federal Funding Requests</b>		\$0	0%

\* CP funds utilized toward complete project planning and grant application development

The City of Muscatine requests \$728,400 in Railroad Crossing Elimination Planning funds to study environmental impacts, conduct appropriate public engagement, and develop the preliminary engineering plans and estimates for the proposed Dick Drake Way viaduct. The

planning phase total cost for the Dick Drake Way viaduct project is \$910,500. The City of Muscatine commits to develop the Dick Drake Way project using a minimum 20% local match planned to come from City general obligation bonds, estimated at \$182,100. This application includes [letters of support](#) from local council members whose support of the project will commit City funds to the project upon notification of grant award. The City does not have any current limitations to the timing of federal funds obligation to access City funds, thus Muscatine is willing and able to commit the funds necessary for the local match. All of the project match will be in the form of cash; the City will also provide in-kind support of staff time to oversee the project, but do not intend to submit that staff time to US DOT as local match.

The City of Muscatine also has financial support from Canadian Pacific Railroad. The \$50,000 in cash support from CP has already been committed to the City's planning-level development for this crossing. CP supports this project – with their letter of support included in this application package. Financial commitment letters are [here](#):

The City of Muscatine note this is a new request for federal funding and the City has not pursued any other federal sources of funding at this time.

## Section 4 – Applicant Eligibility



**The City of Muscatine, as the applicant, is deemed eligible for submission of this grant application under Section C of 87 FR 40335 due to its status as an incorporated city. On February 21, 1851, Muscatine was incorporated by a special act of the Iowa State Legislature and is 1 of 4 Iowa cities that continue to operate under such special authority.**

## Section 5 – Detailed Project Description

### Project History

The City of Muscatine is a thriving, Great Plains community located along U.S. Highway 61 and adjacent to the Mississippi River in southeastern Iowa. It is the county seat of Muscatine County and is approximately 25 miles southwest of Davenport and 35 miles southeast of Iowa City.

As of the 2020 census, the population of the City of Muscatine is 23,797. Muscatine is a vibrant river community where a rich tradition of community pride and entrepreneurial spirit has created an outstanding environment to live and work. Muscatine values its

history, has a strong sense of community, is rich in cultural and economic diversity, and has strong global connections through Fortune 500 companies.

Industry is a strength of the community owing to Muscatine’s location along the Mississippi River. With a strong basis in manufacturing and access to regional highway, rail, and marine freight networks, Muscatine is an important destination in terms of national freight generation and supply chain networks.

In October 2021, CP and Kansas City Southern (KCS) filed an application with the U.S. Surface Transportation Board in which CP sought authorization for the acquisition of KCS. The purchase of KCS by CP was finalized in December 2021 and KCS entered into trust (continuing to operate as an independent company) while waiting for final approval from the Surface Transportation Board, expected in early 2023. The merger of these Class I railways would result in the first rail network connecting Canada with Mexico, by way of the United States as demonstrated by the map published in the Environmental Impact Statement developed for the merger.



Source: United States Surface Transportation Board, [Canadian Pacific Acquisition of Kansas City Southern Draft Environmental Impact Statement](#)



The purchase of KCS by CP is expected to have a significant impact on rail operations within Muscatine, especially at the community's at-grade highway-rail crossings, due to the economic attractiveness of the combined rail network. The Environmental Impact Statement for the CP-KCS merger notes that the benefit to national freight movement, will have localized impacts, especially for Muscatine. First and foremost, Muscatine resides in a section of the merged railway where predicted crashes will increase most substantially. Within the C-OTTU-02 segment south of Muscatine to Ottumwa, the annual predicted crashes increase by 0.32 per year, from 0.11 to 0.43 under the proposed acquisition. This is equivalent to one incident approximately every 9.4 years under the No-Action Alternative and one incident approximately every 2.3 years under the proposed acquisition. The potential for catastrophic injury and loss of life with a frequency of less than 3 years between incidents cannot be accepted by Muscatine's leadership.



Additional impacts related to livability within the area are concerned with the increased noise pollution and vibrations related to the growth in train traffic due to the merger. Coupling these impacts with the increased safety risks highlights the importance of developing an effective solution that benefits all within the community.

Beyond safety, the City residents will daily see an increase in the time they are cut off from the rest of the City. The proposed acquisition will nearly quadruple the total train traffic and gate down occurrences. Though the average gate down time is forecast to decrease, the increased train activity will impose more disruptions, noise, and impacts to quality of life for Muscatine residents to bear at the cities 15 highway-rail crossings.

**WITH FUNDING, MUSCATINE PLANS TO BUILD A RELIABLE LINK TO UNIFY THE COMMUNITY**

The City will need to mitigate the traffic disruptions associated with increased train volumes and thus seek to bridge the City's southern community isolation by creating a reliable link for people and goods across the railroad. The intersection of Dick Drake Way with CP has been identified by the City of Muscatine as a candidate for a grade-separation project.

Expected beneficiaries of the grade-separated facility include residents who reside and work in southern Muscatine, including the environmental justice populations that are in proximity to the area of impact. Additional beneficiaries are users of the regional trail system traveling to Deep Lakes Park and other recreational areas due to the increased number of safe and efficient crossing opportunities.

Emergency services, particularly City of Muscatine's **Fire Station #2** could expect greater benefits as a removal of potential train-vehicle conflicts would prevent delays at the crossing, thereby improving response times and improve rescue and medical outcomes.



**City of Muscatine Fire Station #2 average over 2.6 daily responses per fire vehicle to areas impacted by at-grade railroad crossings. A grade separated crossing would provide reliable, direct access to all territory covered by responders from this unit.**

Trucks associated with the industrial uses found near Dick Drake Way using this facility to access U.S.-61 will also benefit from the improved safety and operational benefits discussed. CP is a major beneficiary as the reduced exposure of vehicle traffic to trains using the mainline means no train-vehicle conflicts and increased efficiency in train operations. Motorists using Dick Drake Way benefit due to this reason as well; through removing potential train exposure to vehicle traffic, motorists can avoid delays when a train crossing event occurs. Similar to vehicular traffic, active transportation users like bicyclists and pedestrians would also benefit from a safer, more efficient crossing over the CP mainline.



**This application for Railroad Crossing Elimination planning funds would allow the City of Muscatine to complete the preliminary and engineering plans and project cost estimates. Through the project public involvement and environmental studies will be conducted to have a shovel worthy project.**

The proposed project concept entails construction of a viaduct serving automobile and multi-use path traffic over the CP tracks to eliminate one at-grade highway-railroad crossing. The project concept would require re-building a portion of Dick Drake Way to achieve the necessary rail clearance above the track while maintaining reasonable maximum grades for passengers, trucks, cyclists, and pedestrians. The concept relocates pedestrian and cyclist movements to the south side of Dick Drake Way where they would cross over the tracks via the viaduct and then loop under the viaduct, parallel and to the northwest of the tracks to join the existing trail alignment. The conceptual shifts in grade and alignment make all users safer by removing one highway-rail, one pathway-rail, and one pathway-highway crossing at the intersection of Dick Drake Way and the CP line.

## Project Challenges and Outcomes

### Livability



A major challenge to the community associated with the presence of the CP mainline is the fact that this rail line bisects the community, which in turn can isolate the resident and businesses located on the south side of the line from accessing the community services, schools, and medical attention. Compounding these impacts is the presence of historically disadvantaged communities just north of the project area. Historic development patterns have marginalized these communities, which has spurred Muscatine to focus on mitigating the adverse impacts to livability posed by a train stoppage event. A stated benefit of the grade-separation is improved air quality and reduced noise owing to the removal of the vehicle-train conflict point that results in vehicle idling. Further livability challenges include the impact of train crossing events on school bus operations. Community input suggests delays owing to train crossing events have substantial impact on student transportation as bus rerouting results in longer wait times for students which can be especially problematic during colder months.



**“ Every second a bus or any motorist stops at a highway-grade crossing, the chances for a traffic collision increase. When a school bus is involved, there are more occupants than a standard passenger vehicle, and that's an increased chance for more injuries or loss of life. A traffic accident involving a school bus can quickly become a disaster. Therefore, we must keep the school buses moving.”**

**-Transportation Director, Louisa-Muscatine Community School District**

Also impacting the community's livability are the impacts to air quality due to vehicle idling during train crossing events as well as noise from these trains. The construction of a grade-separation crossing facility would help reduce these livability impacts as it would reduce vehicle idling and provide some improvement to air quality.

A grade-separated facility can offer an effective solution to these issues by eliminating the isolation the community experiences in the event of a train crossing. Residents of all ages can experience a safer community with enhanced connections.



**“ Over my years of working at this location, there have been times where all access to South End has been blocked to due to traffic at multiple crossings.”**

**-Local Business Owner, Musco Lighting**

## Mobility



The existing at-grade crossing of Dick Drake Way and CP results in mobility limitations as an increased number of trains per day could negatively impact mobility through travel delays during a train crossing event. In addition to these mobility concerns is the challenge of maintaining access to the transportation system should the crossing remain at-grade.

Outcomes expected as a result of constructing a grade-separated crossing at the Dick Drake Way location include an opportunity for an improved trail connection at the Dick Drake Way intersection with the CP mainline. Currently, a trail crosses the north side of the at-grade intersection and connects to another trail segment east of the at-grade intersection via crossing Dick Drake Way. The construction of a grade-separated facility can provide an opportunity to implement a trail facility that allows users to safely cross Dick Drake Way and connect to the eastern trail segment.

A second outcome of a grade-separated crossing is improved traffic and train operations as travel delays associated with train crossing events would no longer occur.

## Safety



A number of Muscatine’s residential population lives within proximity to the CP line, which presents a series of safety challenges for this population. During a train stoppage, a lack of safe crossings can influence cyclists and pedestrians to cross the CP line in an unsafe manner should the train be stopped by their residence. These risks to pedestrians are exemplified by a recent fatality in which a [pedestrian was struck by a train](#) on the CP line at its intersection with Sampson Street.

Outcomes related to traffic safety are also likely; proactive planning today can adequately anticipate potential safety risks associated with an increased number of trains per day and develop solutions to these potential issues.

## Emergency Services and Response Times



Emergency vehicles can be forced to take an alternative route that could be significantly less efficient than a route that utilizes a grade-separated crossing with direct access to the regional highway network in the event of a train stoppage. Based on the severity of the stoppage, it is possible that all crossings can be

blocked and result in an impasse for emergency vehicles attempting to access U.S-61. This poses a significant risk for residential access to emergency services, which can be the difference between life and death in certain circumstances. By removing the at-grade crossing and therefore the potential barrier, access to emergency services can be greatly enhanced.

### Public-Private Collaboration



A successful implementation of a grade-separated crossing at Dick Drake Way and the CP mainline would rely on a collaborative approach to planning in which City staff and private entities work together to develop a solution that benefits all.

The project concept could be contentious because the City of Muscatine, a public agency, wishes to construct within and acquire some of the right-of-way of a private entity, Canadian Pacific. Further, the project concept itself may risk design challenges as it relocates some business access near or potentially within the CP right-of-way.

The major outcome resulting from this challenge would be a mutually beneficial partnership between the City and the private entities in the project area; progress towards this outcome has been made as CP has committed funding to support the planning and construction of a grade-separation at the intersection of Dick Drake Way and the CP mainline. The City of Muscatine and CP will continue to collaborate to seek a preferred alternative and then enter into necessary stakeholder agreements to prepare for the project implementation stage.

### Environmental



Environmental challenges posed by the area surrounding Dick Drake Way and the CP mainline range from physical constraints such as noise, air quality, regulated materials, and natural features including the nearby Mississippi River and Deep Lakes Park. Human environmental constraints in the study area include emergency services, environmental justice populations, and transportation and recreational facilities.

In planning for a grade-separation at the intersection of Dick Drake Way and the CP mainline, the City of Muscatine will consider all strategies available to mitigate impact on the nearby physical and human environmental resources. The planning phase of this project will include a thorough review of environmental resources. The City will work with the Iowa Department of Natural Resources (DNR) to mitigate impacts to regulated material sites that could be affected by the implementation of the grade-separated facility. There are several wetlands within the study area while the 100-year floodplain is outside the study area; consideration will be given to these features during planning and construction.

Human environmental constraints found within the project study area will also be addressed through the planning and design of the grade-separated facility. Efforts will be



made by the City to solicit input from the environmental justice populations within proximity to the Dick Drake Way and CP intersection during project planning. The project will also seek to accommodate existing transportation and recreational facilities, like the multi-use trail to Deep Lakes Park, through planning, design, and construction when possible.



**“As this park grows so does the usage. Since it is located on the east side of the railroad tracks it is dependent on access across the train tracks at Dick Drake Way. Not only could additional trains block access for emergency responder getting to the park but it would also affect the park users access to services in Muscatine. Since many of our users are from out of county and out of state, delays because of train traffic could give them a negative image of Muscatine and Muscatine County and a reason not to come back.”**

**– Muscatine County Board of Conservation**

## Section 6 – Highway-Rail Grade Crossing Safety Information and Education Programs

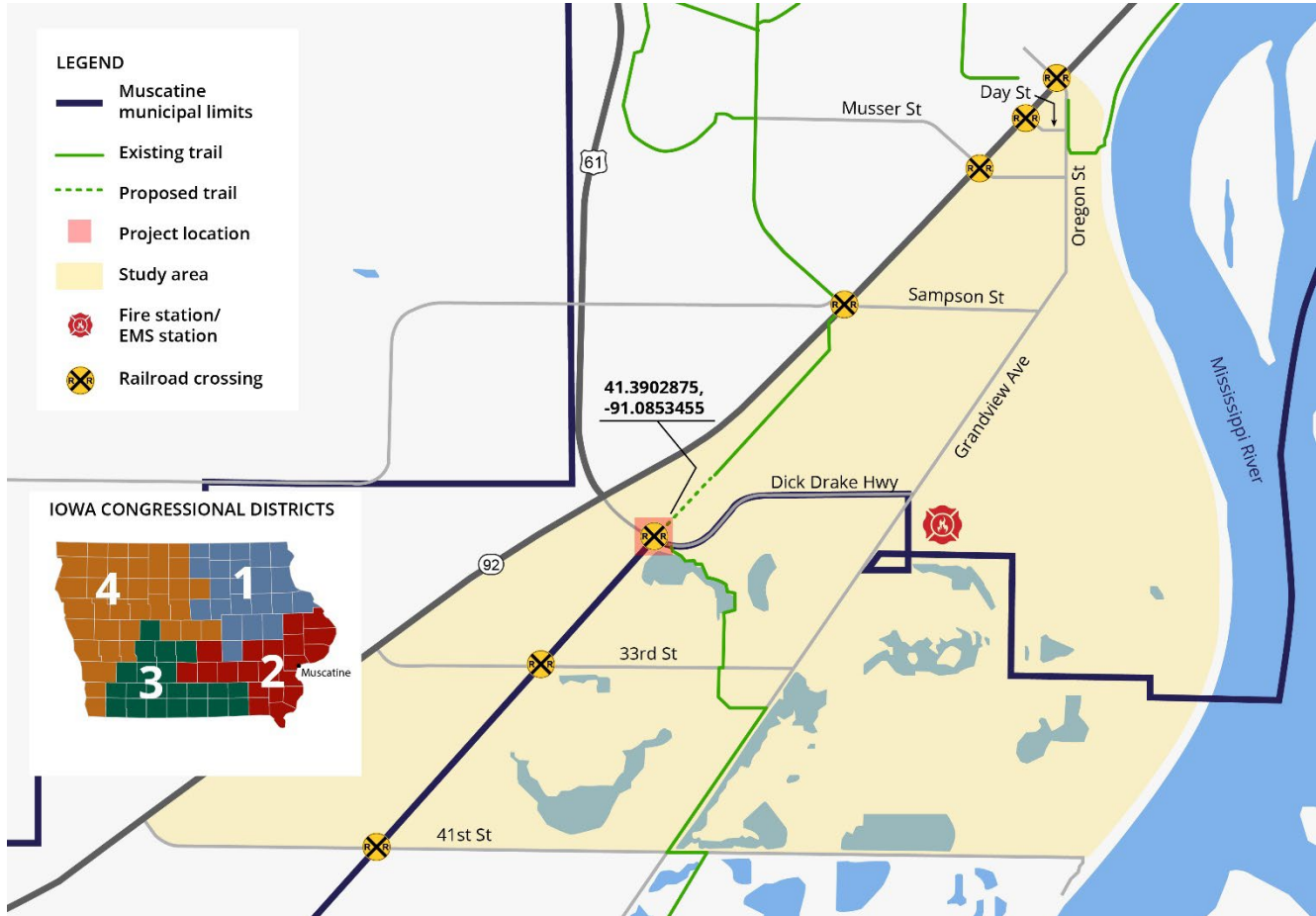
Section 6 is not applicable to the proposed project.

## Section 7 – Project Location

The location of the existing at-grade crossing is 1,000 feet southeast of the intersection of Dick Drake Way and U.S.-61. U.S.-61 serves as the community’s primary connection to the Interstate and National Highway Systems, which facilitate critical mobility and accessibility within the region. Additional roadway facilities in the project location include Grandview Avenue / US-61 Business route, which serves as a direct connection to Muscatine’s downtown and the Highway 92 bridge that carries traffic into the state of Illinois as well as the Muscatine Airport located to the south of the city. Muscatine’s Fire Station #2 is located within the study area detailed below and highlights the potential benefits a grade-separation can provide for emergency vehicle response times.

The study area identified for this planning project includes Oregon Street as the northern boundary, the Mississippi River as the eastern boundary, 41st Street as the southern

boundary, and U.S.-61 as the western boundary. The figure below illustrates the project’s location. The inset map in the figure provides Muscatine’s location within the state of Iowa, as well as the city’s U.S. congressional district. A more detailed map of the project location is available [here](#).



A number of employers reliant upon the highway and rail freight systems are found within the study area defined above. Musco Lighting, Union Tank Car Company, TanTara Transportation Corporation, and Grain Processing Corporation are located along Dick Drake Way east of U.S.-61. The local water utility, Muscatine Power and Water, is also located along Dick Drake Way; the presence of this facility highlights a need to maintain safe and reliable access to the highway and rail freight networks as to provide the inputs needed for the provision of a safe community water supply.

A number of environmental constraints are located in and around the project study area. These constraints include physical and human elements and were identified through a desktop review. Physical constraints found within the project location include land use, noise, air, and regulated materials as well as natural elements including waters of the U.S., threatened and endangered species, and floodplains. The human environment consists of community elements such as public and emergency services, environmental justice populations, transportation, and recreational facilities. As the project moves to the NEPA

phase, further review of these constraints will be required; a preliminary review was conducted as part of the grant application process. The main highlights of this review were:



Numerous regulated material sites are located within these industrial areas and there is a potential for increased exposure to regulated materials with the increased number of trains accessing industrial areas via the mainline.



The rural areas within the Study Area are located predominantly south of Dick Drake Way. These areas have a greater potential for natural resources such as wetlands/Waters of the US and species habitat due to the presence of mapped floodplains and woodland areas.



A residential neighborhood exists within the study area and is listed as a disadvantaged community by the Climate and Economic Justice Screening Tool. The community is listed as disadvantaged due to the proximity of low-income populations to legacy pollution sites.



The downtown portion of the City of Muscatine is located within a railroad quiet zone, but the Study Area is not included in this quiet zone. Residences and businesses in the Study Area experience delay, emissions, noise, and vibrations regularly from train traffic.



Public services within the Study Area are limited. A fire station is located at the intersection of Stewart Road and Dick Drake Way. Additional emergency services and public amenities such as schools and libraries are located outside the Study Area and require crossing the railroad to access.

## Section 8 – Grade Crossing Information

<b>DOT Crossing Inventory Number</b>	393258B
<b>Railroad Ownership</b>	Canadian Pacific
<b>Primary Operating Railroad</b>	Dakota, Minnesota, & Eastern Railroad
<b>Railroad Division/Region</b>	East
<b>Railroad Subdivision/District</b>	Ottumwa
<b>Branch/Line Name</b>	Ottumwa-Nahant
<b>Roadway at Crossing</b>	Dick Drake Way

## Section 9 – Evaluation and Criteria

The grade separation of the CP mainline at the intersection with Dick Drake Way satisfies a number of evaluation and selection criteria associated with the Railroad Crossing Elimination Program, which makes this project a strong candidate for funding. Due to the estimated cost of the project and its location in a rural area, the City of Muscatine does not have the fiscal capacity to implement the grade separation without support from USDOT. The following points demonstrate the project's alignment with Railroad Crossing Elimination's outcome criteria:

### Improves safety at a Highway-Rail and Pathway-Rail Grade Crossings –



The current Dick Drake Way and CP railroad alignments cross at a single highway-rail crossing with two quadrant cross arms and flashing lights. While Dick Drake Way itself has few pedestrian amenities, the Mississippi River multi-use trail crosses Dick Drake Way about 0.1 miles east of the highway-rail crossing with pedestrian and cyclist traffic able to pass from southeast to the northwest across the highway. After that highway-pathway crossing, the multi-use trail parallels Dick Drake Way on the north side of the roadbed until the pathway also crosses the CP tracks. The pathway-rail crossing utilizes a level crossing with tactile ramps to warn members of the vision-impaired community of the impending crossing and a couple hundred feet prior to the crossing there are gates.

The proposed improvement elevates Dick Drake Way traffic to grade separate the highway-rail crossing, entirely eliminating a crossing conflict. The proposed improvements also re-align vulnerable road users on the pathway to travel south of Dick Drake Way, over the rail tracks, and then gently loop back down to grade and pass under Dick Drake Way. The pathway would improve from two crossings of vulnerable road users with heavy vehicles to zero crossing conflicts.

Safety analysis conducted using FRAs GradeDec for a grade separation at the Dick Drake Way and CP crossing found a total benefit of \$106,218 in 2020 dollars related to crashes. The GradeDec analysis is exclusive to the crash reduction from highway-rail traffic; thus it underestimates the safety benefit of also removing the pathway-highway and pathway-rail grade crossings – conflicts that could have fatal consequences for a vulnerable road user should they be struck by a car or truck or a rail vehicle.

From a corridor perspective, several crashes have occurred at the at-grade crossings near the Dick Drake Way intersection with the CP mainline. While the crashes did not involve any train-vehicle collisions, the majority involved collisions with crossing infrastructure such as the crossarms. These crash events highlight the potential for a rail-vehicle collision should a

similar type of crash occur during a train crossing event. As stated, the construction of a grade-separated facility would eliminate this possibility.

Further demonstrating that this project would benefit entire corridor rather than just the Dick Drake Way and CP crossing is the agreement between the City and CP to close the Day Street-CP crossing as part of an effort to improve safety and operations along Oregon Street. Pairing these improvements with the Dick Drake Way and CP grade-separation would result in community-wide benefits from improved safety conditions and traffic operations through the corridor.

### Proposes to grade separate, eliminate, or close one or more Highway-Rail or Pathway-Rail Grade Crossings –



The proposed Dick Drake Way-CP mainline grade separation project would design a grade-separated crossing between the highway and rail facilities that currently meet at-grade. This improvement would allow for the removal of one highway-rail at-grade crossing, one pathway-rail at-grade crossing, and one pathway-highway at-grade crossing. The improved connection over the CP mainline associated with the grade-separation would provide a route for auto and trail user traffic that formerly would conflict with multiple vehicle types in proximity to the Dick Drake Way crossing.

Iowa DOT's 2021 State Rail Plan recommends a statewide study of grade crossings with the intent of prioritizing closures, grade-separations, and other improvements. This study is recommended for completion over the first four years of the State Rail Plan, which is identified as the years 2021 through 2025. This study serves as an opportunity for the City of Muscatine to supplement the planning of a grade-separated crossing at Dick Drake Way and the CP line and including this project in future state planning studies.

### Improves mobility of both people and goods –



The proposed project would provide mobility benefits to both people and goods as the reduction in at-grade train crossings will prevent delay as users of these systems will no longer be in conflict during a train crossing event. These benefits extend to users of the bicycle and pedestrian system as an improved at-grade crossing can provide a safe and reliable route across the CP mainline while maintaining connectivity with the trail network east of the Dick Drake Way and CP mainline intersection.

The project analysis using FRAs GradeDec identified nearly \$600,000 in travel delay reduction benefits to vehicles by removing the at-grade crossing with the rail line. The analysis does not account for the impacts of delay on supply chains or value of goods – which may be relevant here given the industrial character of land uses served by the highway-rail crossing and nearby manufacturing and logistics facilities.



Iowa DOT's 2022 State Freight Plan includes a list of the top highway freight bottlenecks across the state. The intersection of U.S.-61 and Grandview Avenue / Dick Drake Way was identified as a high priority location for improvement; as this intersection is near the grade-separation, the construction of the grade-separation could aid Iowa DOT in improving freight operations through reduced delays at the intersection of U.S.-61 and Grandview Avenue / Dick Drake Way.

### Reduces emissions, protects the environment, and provides community benefit –



Supplementing the improved traffic operations are the emissions benefits associated with the grade-separated crossing due to reduced travel delays resulting from train crossing events. Idling vehicles that have stopped due to a passing train serve as a source of vehicle emissions, namely carbon dioxide, volatile organic compounds, and nitrogen oxides. The grade-separation at Dick Drake Way and the CP mainline will remove the need for vehicles to idle during train crossing events due to the removal of vehicle-train conflicts, which in turn will provide the emissions benefits as vehicles will no longer be required to stop.

Further, the increase in rail traffic by the proposed KCS and CP merger will adversely impact the community through noise pollution. The grade separation primarily will focus on the Dick Drake Way crossing – but the community engagement conducted within the study may go a long way to identifying mitigation alternatives to properties just adjacent to the rail right-of-way. The cumulative improvements to safety that will be under analysis will serve the potential of a future extended quiet zone designation. The community would certainly benefit by reduced train horn noise.



**A noise analysis of the CP / KCS merger noted a 150% increase in noise receptors impacted beyond pre-merger conditions including locations like residences, hospitals, schools, libraries, nursing homes, and places of worship.**

### Improves access to emergency services –



The presence of Muscatine's Fire Station #2 within the project study area demonstrates the potential to improve access to emergency services with the construction of a grade-separated crossing. A grade-separated crossing would remove the potential for train-vehicle conflicts which would allow emergency vehicles traveling west a direct connection to the regional highway network without need to reroute. The efficiency gained through this direct connection can improve emergency vehicle response times when access to U.S.-61 is required. More detail on the current emergency response conditions for Fire Station #2 can be found [here](#).

### Improves access to communities-

A grade-separated crossing can improve access to the residences and employers located within the project study area by providing a reliable connection along Dick Drake Way that would not be impeded in the event of a passing train. With the current at-grade crossing, the residences and employers located within the study area are virtually isolated during a train crossing event as no grade-separated facilities currently exist. This results in safety and operational impacts as users of the transportation network must reroute, which can lead to crossing the CP line at unsafe locations or delay users until the train passes.

### Provides economic benefit –



Economic benefits related to the construction of a grade-separated facility would be accrued by the local freight system and manufacturers, as both highway and train freight users would benefit from improved safety and operations related to a grade-separated crossing that reduces vehicle delays during train crossing events. The highway freight system would also benefit from the more efficient connection to the regional highway network. The grade separation project as conceived allows for the relocation of property access on the south side of Dick Drake Way – which creates the opportunity for track siding expansion. Siding tracks allow for local manufacturers to reduce costs of truck transport and reduce the truck travel into and through communities.

The City of Muscatine was awarded \$80,000 in 2016 as part of Iowa DOT's Linking Iowa's Freight Transportation System (LIFTS) Program, which awards funds for transportation improvements that plans or constructs enhancements to the state's freight transportation system. Muscatine was awarded LIFTS funding to conduct a planning study for a multi-modal terminal port facility that would be located southeast of the Dick Drake Way and CP mainline. Iowa DOT's 2022 State Freight Plan continues to recommend the construction of a transload/intermodal/port facility within the City of Muscatine building on the LIFTS award. The construction of a transload facility could strengthen the regional economy by providing a facility that efficiently transfers goods between rail and highway modes, thereby attracting greater quantities of goods to the community. The construction of the proposed grade-separated crossing at Dick Drake Way would greatly benefit multi-modal port traffic and freight mobility for both rail and highway modes in general. The anticipated freight system improvements would be critical to supporting the increased demand of freight goods in the community and region as a whole.

### Uses contracting incentives to employ local labor to the extent possible under Federal law –



The Muscatine community is well situated to apply the proposed rail crossing elimination grant to engage local labor in project delivery. The 2015-2019 American Community Survey estimated that 4.8% of employment in Muscatine

county is in the construction industry. The development of this heavy road construction project will likely spur local assignments and potential hires and subcontracts from larger Iowa contractors in the metropolitan areas of the Quad Cities and Iowa City to Muscatine residents. The City of Muscatine commits to engaging disadvantaged business enterprises (DBE) and contractors with apprenticeship programs based on service providers registered within Iowa. Muscatine's commitment to engaging DBE's has been demonstrated through past efforts in which the City met DBE minimums for engineering projects, which is a practice the City is committed to pursuing.

### Financial Support of Impacted Rail Carriers –



A draft Environmental Impact Statement (EIS) developed as part of the CP-KCS merger indicates CP's proposed mitigation measures, which commits CP to work with affected communities who request support in obtaining funds for improving grade crossing safety. Additional measures identified in the EIS include CP's commitment to working with emergency service dispatch centers in the event of a train blockage at a crossing as well as committing funds to improve quiet zones should increased rail traffic cause a quiet zone to fall out of compliance with FRA regulations. As evidence of CP's commitment to working with the City of Muscatine on the grade-separation concept, the carrier has contributed \$50,000 in funding for project concepting while reaffirming their commitment to assisting the community in securing additional Federal funding.

### Improves Multiple Modes –



The genesis of the grade-separation project was a desire to improve safety and mobility for all facets of Muscatine's transportation system—from road users to freight and active transportation users. This project seeks to maximize benefits to all users of the transportation system. In terms of roadway users, the reduced potential for conflict with trains will improve safety conditions at crossings while delay associated with passing trains will no longer be an occurrence. Similarly, highway and rail freight users will benefit from these same outcomes.

Active transportation users can expect to benefit from the removal of the existing at-grade crossing, which can influence these users to cross the CP mainline in an unsafe manner during a train crossing event, through the construction of a grade-separated facility that serves a direct connection to the existing regional trail network.

### Inclusion in State Planning Documents –



A grade-separation at the intersection of Dick Drake Way and the CP mainline has not been identified in the Iowa Department of Transportation's (DOT) current State Freight Plan or State Rail Plan. While the project is not explicitly identified in either of these state plans, both articulate a need to improve safety at highway-rail crossings throughout the state and identify grade-separations as a key opportunity for

addressing this need. As part of the effort to improve safety at highway-rail crossings, Iowa DOT’s State Rail Plan recommends a statewide rail crossing study, which poses an opportunity for the City of Muscatine to work with Iowa DOT on prioritizing the grade-separation of Dick Drake Way and the CP line in this state planning document.

To support the goals and objectives of these state plans, the City of Muscatine is willing to collaborate with all stakeholders, including Iowa DOT and other interested agencies, in the planning of a grade-separated facility at Dick Drake Way and the CP mainline.

### Use of Innovative Technologies, Innovative Design, and Construction Techniques and Materials –



The City of Muscatine is committed to utilizing innovative design, construction techniques, and sustainable materials for municipal projects whenever it is feasible. For this grade-separation, the City will incorporate the use of recycled concrete during construction as permitted by the design and engineering requirements of the project.

## Section 10 – Safety Benefit

Safety benefits related to a grade-separated crossing at the intersection of Dick Drake Way and the CP mainline were analyzed using the Federal Rail Administration’s (FRA) GradeDec tool, which uses USDOT’s Accident Prediction Model as an input. Refer to FRA’s [GradeDec report](#) for more information on the tool. The findings of this analysis monetize the benefits of a grade-separated crossing in terms of crash and travel time costs for a Base Case, or No-Build, scenario and an Alternate Case, or Build, scenario to allow a comparison of benefits. Monetized benefits are presented in 2020 dollars.

### Annual Predicted Crashes at the Dick Drake Way Corridor

	Dick Drake Hwy	
	Base (Existing)	Alt (Grade Separation)
Fatal	0.000426	0
Injury	0.000932	0
PDO	0.001957	0
<b>Total</b>	<b>0.003315</b>	<b>0</b>

### Summary of Benefits and Costs for the Dick Drake Way Corridor

Benefits, 2020 \$	
Safety	\$103,260
Travel time	\$617,154
Environmental	\$29,995
Vehicle operating costs	\$107,438
Network	\$0
Salvage Value	\$289,827
<b>Total benefits</b>	<b>\$1,147,674</b>

Costs, 2020 \$	
Overpass and Highway, Construction	\$4,691,650 <sup>1</sup>
<b>Total cost</b>	<b>\$4,691,650</b>
<b>Benefit-Cost ratio</b>	<b>0.24</b>

<sup>1</sup>Future year construction costs adjusted to 2020 \$. Default value, actual construction costs may be higher.

### Project Benefits

GradeDec projects the Dick Drake Way grade separation to result in over \$1,100,000 in benefits in 2020 \$. The calculations of these benefits consider a series of 7 interrelated crossings that serve south Muscatine. The projected benefits heavily skew toward travel time reduction benefits, largely drawing from the traffic volumes on Dick Drake Way and parallel crossings that will benefit from a resilient vehicle crossing that won't experience blockages by rail crossing gates. Environmental and vehicle operating cost benefits are less substantial, but also result from traffic diversion to the new overpass and reduced idling at railroad crossing gates.

The GradeDec tool includes a highway-rail crash prediction model that includes both predictive factors and weighting for crash observations. The challenge with that approach for Muscatine is that the Dick Drake Way and parallel crossings have a low crash history – but that history is based on a lower-than-expected history of train activity going forward.

The crash prediction benefit for the Dick Drake Way grade separation could be substantially higher if even one serious highway-rail crash is prevented – like prevention of the recent pedestrian-rail fatality at the adjacent Sampson Road crossing.

*The GradeDec safety analysis may undervalue the safety benefits of a Dick Drake Way grade separation.*

Additionally, GradeDec is a tool for vehicle conflicts between rail and passenger cars / trucks. The Dick Drake Way grade separation is critical because it also removes one rail-pathway conflict and a highway-pathway conflict. Crash prediction for these two conflict



types are understudied issues. However, based on risk principles alone – the conflict of a vulnerable road user to a vehicle at train or highway speeds is much more likely to yield a catastrophic outcome than a collision between vehicles that have some safety protective capacity for vehicle inhabitants.

*Vulnerable road users benefit from the Dick Drake Way grade separation*

### Benefit-Cost Ratio

The GradeDec tool developed a benefit-cost ratio based on predicted future benefits of grade separation. The benefits experienced in each year after project open were converted to a single, present value and compared to project costs converted to present value. Though the project costs are anticipated to be \$7,284,035.00 in 2022 dollars, the 2020 dollar equivalent is \$4,691,650; a detailed cost estimate of the grade separation is available [here](#). In dividing the \$1,147,674 in quantified benefits by the \$4,691,650 project cost – a benefit-cost ratio of **0.24** is developed. The benefit-cost ratio here is limited to just six benefit categories, ignoring non-rail improvements, based on the limitations of GradeDec. A more in-depth economic analysis may provide for enhanced quantification of benefits of the project. More information on the benefit-cost ratio can be found [here](#).

*The Dick Drake Way grade separation has a higher cost than the quantified benefits – but factors like community livability, emergency services reliability, and vulnerable road user safety are not accounted for in this high-level analysis.*

## Section 11 – Alignment with USDOT Strategic Coals

The grade-separation at the intersection of Dick Drake Way and the CP is a strong candidate for funding as the benefits of this project go beyond the Muscatine community and CP as it aligns with several of USDOT’s strategic goals. Detail on the USDOT strategic goals addressed by this project are below:

### Climate Change and Sustainability Impacts –



The grade-separation project will address climate change and sustainability namely through the reduction in vehicle delay owing to the separation of train and vehicle traffic. This reduction in delay results in fewer tailpipe emissions related to idling vehicles, thereby limiting emissions to the fullest extent possible.

### Equity and Reduced Barriers to Opportunity –



A separation of Dick Drake Way with the CP mainline can reduce the community barrier posed by the existing rail line that acts to isolate the community during a train crossing event. The separation could especially benefit the environmental justice and other disadvantaged populations living in and around the project area.

The City of Muscatine values the power of public engagement throughout the planning and design process and commits to building off successful public engagement strategies used in the past for the Dick Drake Way and CP grade-separation. One initiative the City will pursue during the planning of this grade-separation is Muscatine Heart and Soul, which is an engagement model that seeks to gain public input through a variety of strategies. More information on Muscatine Heart and Soul can be found [here](#).

Further engagement efforts will seek to collaborate with residents and business within the project area to understand the current needs and opportunities for the community and how these can be addressed through the construction of a grade-separation at Dick Drake Way and the CP mainline.

### Project Delivery Advances Jobs / Workforce Inclusion –



The grade-separation will advance workforce inclusion as this labor-intensive project will require a number of different employers, which the community has indicated would include DBEs and contractors with apprenticeship programs to the fullest extent possible.

## Section 12 – Project Implementation and Management



The City of Muscatine Public Works department will lead project implementation to achieve successful completion of preliminary engineering, NEPA documentation and approvals, and a comprehensive public engagement process. The project will be overseen by City Engineer Pat Lynch and Public Works Director Brian Stineman. Pat has over 23 years of progressive civil engineering and project management experience in the development of highways and other public works plan sets. Pat has served the City of Muscatine in multiple capacities since July 2018 (roughly 4 years) and supervises / works with a capable support staff.

The City of Muscatine will make arrangements to develop the entire scope of services. Upon grant award, the City will make a determination as to whether to contract for engineering or other professional services to achieve the statement of work. The City

possesses appropriate contracting capabilities to engage professional and engineering services should they be needed.



Pat as project manager will serve in the capacity of contract oversight and control. Pat will manage his staff, any contracted staff, and FRA staff engaged in this award to adhere to a strict project schedule. The project outlined is a planning phase project and will focus on a scope of services resulting in NEPA clearances, permits for work on railroad premises and with utilities, potential acquisitions and easements, and preliminary and final design plans. The City will use a pre-emptive approach to stakeholder outreach and staff history with numerous federal-aid projects to develop a comprehensive scope of work at project outset. The project delivery will also include proactive communication and monitoring to identify potential risks and changes to the scope of work.

The City of Muscatine will shrewdly apply risk management and project change management techniques to limit the potential that project funds are insufficient to reach the proposed project outcomes. City staff have past expertise in managing risks and project changes using the following techniques:

Ultimately, the City's project management approach will conform to federal requirements as outlined on FRA's web site: [fra.dot.gov/Page/P0274](http://fra.dot.gov/Page/P0274). The City's past experience in federal aid projects when developing the local trail network and local projects to enhance transit and the municipal airport confirm City staff's proclivity for project delivery to the requirements of federal agencies.

Pat can be reached at [plynch@muscatineiowa.gov](mailto:plynch@muscatineiowa.gov) or by phone at 563-263-8933 with questions on project management approach.

## Section 13 – Environmental Readiness

The National Environmental Policy Act (NEPA) process for the Dick Drake Way grade separation is not underway. Once the conceptual engineering phase for the grade separation is complete, the project will move into the preliminary engineering and NEPA phase. All potential impacts stemming from the construction of a grade-separated crossing will be examined during the NEPA process, beginning at the earliest practical time in the process. The NEPA process will include a comprehensive engagement component that seeks input from all appropriate federal, state, and local authorities in addition to input gained from the public.

In preparing for the proposed grade separation project, the City of Muscatine with assistance of professional advisors have screened the project type and study area for the type of NEPA document anticipated and duration of NEPA process. Map figures summarized this screening can be found [here](#).

*Type of NEPA document anticipated for grade separation project:  
Categorical Exclusion*

*Duration: Approximately twelve to eighteen months.*

Upon funding award, the City of Muscatine would work fully with FRA to apply the NEPA process within the federal interpretation of the Council on Environmental Quality (CEQ). The statement of work proposed has been formulated from FRA guidance and with intent to reflect 23 CFR Part 771 Environmental Impact and Related Procedures and 23 CFR Part 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f)).