AGENDA ITEM: #4
DATE: 9-02-21

AMES AREA METROPOLITAN PLANNING ORGANIZATION

TRANSPORTATION TECHNICAL COMMITTEE

SUBJECT: FFY 2023 IOWA CLEAN AIR ATTAINMENT PROGRAM (ICAAP) PROJECTS

BACKGROUND:

The Iowa Clean Air Attainment Program (ICAAP) helps to fund transportation projects and programs that result in attaining or maintaining the national ambient air quality standards (NAAQS). The Ames Area MPO is in attainment of the NAAQS, however, ICAAP funds are available for projects in the area which result in reductions in vehicle emissions and traffic congestion.

The Ames Area MPO needs to review all potential ICAAP applications within the area for to ensure that they are financially feasible and conform with Ames Area MPO transportation planning process. If the criteria are met, the MPO can adopt formal resolutions stating that the proposed projects conform to the regional transportation process. These resolutions are needed by the project sponsors to submit their project to the Iowa Department of Transportation for consideration. Project sponsors are responsible for delivering their completed application to the Iowa Department of Transportation by the State's deadline of October 1, 2021, at 5PM.

The following projects have been submitted for a resolution by the Ames Area MPO for the FFY 2023 ICAAP grant cycle:

Project Sponsor	Sponsor Priority	Project Name	ICAAP Request	Total Cost Project
City of Ames	1	Ames Traffic Network – Phase 3 (Fiber Network & Adaptive Control)	$1,495,280	$1,869,100
City of Ames	2	Alternative Fuel Grants Application (B100 Biodiesel)	$75,196	$93,996
CyRide	1	#11: Cherry (Night Service) – Yr. 3	$31,609	$39,512
CyRide	2	#12 Lilac (Midday Service) – Yr. 3	$29,830	$37,287
CyRide	3	#6 Brown (Night Service) – Yr. 3	$28,258	$35,323

Awards will be made by the Iowa Transportation Commission in early 2022. Funds will become available in FFY 2023, which begins on October 1, 2022.

ALTERNATIVES:

1. Recommend the presented ICAAP projects to the Transportation Policy Committee for formal resolutions.
2. Recommend the presented ICAAP projects with Transportation Technical Committee modifications to the Transportation Policy Committee for formal resolutions.

ADMINISTRATOR'S RECOMMENDATION:

MPO staff have reviewed all the received ICAAP projects applications and believe that they are financially feasible and conform to the MPO's regional transportation process.

Therefore, it is recommended by the Administrator that the Transportation Technical Committee adopt Alternative No. 1, thereby recommending the presented ICAAP projects to the Transportation Policy Committee for formal resolution.

Form 230017 (08-18)

Print Form

PROJECT APPLICATION
IOWA CLEAN AIR ATTAINMENT PROGRAM (ICAAP)

General Information:

Applicant Agency: City of Ames (Public Agency (required)) E-mail: damion.pregitzer@cityofames.org

Contact Person (*Name and Title*): Damion Pregitzer, Traffic Engineer

Complete Mailing Address: City Hall, 515 Clark Avenue (Street Address and/or Box Number)

Ames (City) IA (State) 50010 (ZIP Code) 515-239-5160 (Daytime Phone)

If more than one agency or organization is involved in this project, please state the name, contact person, mailing address, and telephone number of the second agency. *(Attach an additional page if more than two agencies are involved.)*

Co-Applicant Agency: (Public Agency, Non-Profit Organization[1], For-Profit Organization[1], or Individual[1]) E-mail:

Contact Person (*Name and Title*):

Complete Mailing Address: (Street Address and/or Box Number)

City State ZIP Code Daytime Phone

Project Information:

Project Title[2]: Third Phase Deployment Ames Traffic Signal Master Plan

Project Description (including length, if applicable):
Install fiber optic cable and network switching equipment, traffic signal cabinets, Advanced Traffic Controllers, Advanced Traffic Management System, and software to provide communication and traffic management capabilities for the Grand Avenue Corridor. This Third Phase will provide a fiber optic connection from South 4th Street and Duff Avenue West down 3rd Street to University. This phase will connect South 3rd Street and Grand Avenue North to Bloomington Road, Grand Avenue and Duff Avenue South down Duff to 13th Street, 13th and Duff West back to Grand Avenue, and Duff and 24th Street West back to Grand Avenue. It will also include connecting City Hall to Duff down 6th Street and connecting Homewood Golf Course to Duff at 24th Street.

*Project priority (1 = highest priority): 1 (a sponsor submitting multiple applications in this funding cycle must assign a numerical rank or priority to each application.)[3]

*Assign the proposed project to one or more of the following categories (check one or more):

- ☐ Transportation-Related Project in the State Implementation Plan (SIP)
- ☐ Transportation Control Measure (TCM)
- ☑ Traffic Flow Improvement (Intersection, Signalization, Other)
- ☑ Planning and Project Development
- ☐ Travel Demand Management (TDM)
- ☑ Transit-Related Improvement
- ☐ Shared-Ride
- ☐ Bicycle or ☐ Pedestrian Facility or Program (select one)
- ☐ Intermodal Freight
- ☐ Passenger
- ☐ Alternative Fuels
- ☐ Vehicle Inspection and Maintenance Program
- ☐ Outreach Activity (Education, Advertising, or Technical Assistance)

*Is the project consistent with the State Implementation Plan for air quality for non-attainment areas? ☐ Yes ☐ No ■ Not Applicable

*Is the project consistent with the MPO's local congestion management plan? ■ Yes ☐ No ☐ Not Applicable

*Is the project consistent with t☐ MPO ☐ RPA ☐ Statewide Long-Range Transportation Plan? ■ Yes ☐ No ☐ Not Applicable

Notes: [1]Requires public agency as co-sponsor of application.
[2]The term "project" means any ICAAP infrastructure or program proposal.
[3]The Iowa Department of Transportation will use the priority ratings to reflect the sponsor.

Project Costs *(an itemized breakdown must be included on an attached sheet)*:

Total Cost:	$	$1,869,100.00
Iowa Clean Air Attainment Program Fund Request:	$	$1,495,280.00
Applicant Match	$	$373,820.00

Projects with a private for-profit co-applicant require a minimum 50 percent applicant match; all other projects require a minimum 20 percent applicant match.

	List All Applicant Match Sources	Amount	Assured or Anticipated (Date Anticipated)
1.	City of Ames	$373,820.00	July 2022
2.			
3.			

Are any state funds involved in this project? ☐ Yes ■ No

If Yes, please explain the source and conditions:

Are any other federal funds involved in this project? ☐ Yes ■ No

If Yes, please explain the source and conditions:

Estimated Project Development Schedule:

Design:	Start Date:		Completion Date:	
Land Acquisition:	Start Date:		Completion Date:	
Construction:	Start Date:	July 2022	Completion Date:	July 2023

Has any part of this project been started? ■ Yes ☐ No

If Yes, please explain:

Ames Traffic Signal Master Plan

How do you plan to measure the success of this project?

The completion of the construction of the fiber optic connection from the Homewood Municipal Golf Course connected to the Grand Avenue Corridor and the implementation of an Advanced Traffic Management System along the Grand Avenue Corridor.

Required Documentation and Narrative Information

The following documents and narratives must be submitted with this application. In the upper right corner of each document or narrative write the corresponding letter shown below.

- ☑ A. A NARRATIVE assessing existing congestions/air quality conditions, outlining the concept of the proposed project, and providing adequate project justification. How will this project reduce congestion, reduce travel or single occupant vehicle usage, and/or improve air quality? Which transportation-related pollutant(s) are being addressed: carbon monoxide, ozone, or particulate matter (PM)?
- ☑ B. A DETAILED MAP identifying the location of the project and clearly differentiating the subject project from any past or future project phases.
- ☑ C. An ITEMIZED BREAKDOWN of the total project costs. This documentation does not need to be a detailed, line-item type of estimate. However, it must accomplish two objectives: First, it must show the method by which the cost estimate was prepared; and second, it must enable a reviewer to determine if the cost estimate is reasonable. The manner in which these objectives are achieved may vary widely depending on the type, scope, and complexity of the project. Absent a fully itemized list of costs, some general guidelines for possible methods of estimating each type of project cost are provided on Attachment A.
- ☑ D. A TIME SCHEDULE for the total project development.
- ☑ E. An OFFICIAL CERTIFICATION from the applicant's governing body (authority) that it shall: (1) commit the necessary local matching funding for project implementation and (2) upon project completion, be responsible for adequately maintaining and operating the project for public use during the project's useful life.
- ☑ F. An ADOPTED FORMAL RESOLUTION from the appropriate MPO or RPA declaring the sponsor's proposed project or program conforms to the MPO's or RPA's regional transportation planning process. (For MPOs, the project or program must be identified in the fiscally constrained transportation plan and, if applicable, the congestion management plan in TMAs.)
- ☑ G. CALCULATIONS for vehicle emission reductions and total project cost-effectiveness for the targeted pollutants. Project applicant must show through a quantitative analysis how many kilograms of pollutant will be reduced (CO, VOC, NOx, and, if applicable, PM). Project sponsor must calculate the cost-effectiveness of the project by: Dividing the total annualized project cost by the number of kilograms per year of pollutant reduced ($ per kg). Applicant must also show all assumptions and source of data used to calculate the estimates. The applicant must use the most current vehicle emission factors developed by the Iowa DNR and consistent with the U.S. EPA's MOBILE 6.2 air quality model. These emission factors are periodically updated and may be obtained from the Iowa DOT's ICAAP website at: .
- ☑ H. Completed MINORITY IMPCT STATEMENT attached to application.

The award of ICAAP funds; any subsequent funding or letting of contracts for design, construction, reconstruction, improvement, or maintenance; and the furnishing of materials for this project shall not involve direct or indirect interest of any state, county, or city official, elective or appointive. All of the above are prohibited by Iowa Code 314.2, 362.5, or 331.342. Any award of funding or any letting of a contract in violation of the foregoing provisions shall invalidate the award of ICAAP funding and authorize a complete recovery of any funds previously disbursed.

CertificationTo the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating local authority. I understand the attached **official endorsement(s)** binds the participating local governments to assume responsibility for adequate maintenance of any new or improved facilities.

If ICAAP funding assistance is approved for the project described in this application, I understand that an executed contract between the applicant and the Iowa DOT is required before such funding assistance can be authorized for use in implementing the project.

Representing the City of Ames
(Name of Applicant's Governing Authority)


Signature

8/30/21
Date

Damion Pregitzer, Traffic Engineer
Typed Name and Title
(Governing Authority Official)

8/30/2021
Date

IOWADOT

Form 105101 (3-18)

Print Form

Minority Impact Statement

Pursuant to 2008 Iowa Acts, HF 2393, Iowa Code 8.11, all grant applications submitted to the State of Iowa that are due beginning Jan. 1, 2009, shall include a Minority Impact Statement. This is the state's mechanism for requiring grant applications to consider the potential impact of the grant project's proposed programs or policies on minority groups.

Please choose the statement(s) that pertains to this grant application. Complete all the information requested for the chosen statement(s). Submit additional pages as necessary.

☐ The proposed grant project programs or policies could have a disproportionate or unique **positive** impact on minority persons.

Describe the positive impact expected from this project.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☐ Asians

☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other_____

☐ The proposed grant project programs or policies could have a disproportionate or unique **negative** impact on minority persons.

Describe the negative impact expected from this project.

Present the rationale for the existence of the proposed program or policy.

Provide evidence of consultation with representatives of the minority groups impacted.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☐ Asians
☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other _____

☑ The proposed grant project programs or policies are **not expected to have** a disproportionate or unique impact on minority persons.

Present the rationale for determining no impact.

The area of travel encompassed by this project is used by the general public and does not contain any ares where minorities would be a prevalent population.

I hereby certify that the information on this form is complete and accurate, to the best of my knowledge.

Name _____

Title _____

Definitions

"Minority Persons," as defined in Iowa Code 8.11, means individuals who are women, persons with a disability, Blacks, Latinos, Asians or Pacific Islanders, American Indians, and Alaskan Native Americans.

"Disability," as defined in Iowa Code 15.102, subsection 7, paragraph "b," subparagraph (1):
b. As used in this subsection:
(1) *"Disability"* means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of the individual, a record of physical or mental impairment that substantially limits one or more of the major life activities of the individual, or being regarded as an individual with a physical or mental impairment that substantially limits one or more of the major life activities of the individual.

"Disability" does not include any of the following:
(a) Homosexuality or bisexuality.
(b) Transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments or other sexual behavior disorders.
(c) Compulsive gambling, kleptomania, or pyromania.
(d) Psychoactive substance abuse disorders resulting from current illegal use of drugs.

"State Agency," as defined in Iowa Code 8.11, means a department, board, bureau, commission, or other agency or authority of the State of Iowa.

REQUEST FOR IOWA'S CLEAN AIR ATTAINMENT PROGRAM (ICAAP)

ATTACHMENT A

Itemized breakdown of total project costs guidelines.

Construction costs
These may be based on historical averages for entire projects of similar size and scope. Examples include:

- Typical cost per mile of trail (e.g., $200,000 per mile for moderate terrain and limited number of structures).
- Typical cost per square foot of bridge deck.
- Typical cost per square foot of fiber optic traffic signal interconnect cable (i.e., $178,000 per mile).
- Typical cost per traffic signal upgrade (i.e., $163,000 per lump sum signal bid item).

Design/Inspection costs
These may be estimated based on the following typical percentages of construction costs, such as:

- 8 to 10 percent for preliminary up through final design and letting activities.
- 12 to 15 percent for construction inspection activities.

Right of way acquisition costs
These may be estimated based on:

- Impact and description of impact.
- Typical cost per square foot for permanent right of way.
- Typical cost per square foot for temporary easements.

Utility and railroad costs
These may be estimated based on:

- Impact and description of impact.
- Typical cost per linear foot of relocated or reconstructed facility (i.e., track, pipe, electrical lines).
- Typical cost per installation (i.e., railroad switches, utility poles, transformers, control boxes).

Indirect costs
If indirect costs are involved (e.g., wages):

- Estimated hours.
- Estimated hourly rate, salary.
- Estimated fringe, direct.
- Other direct cost estimate.
- Other indirect cost estimate.

City of Ames

TRAFFIC SIGNAL COMMUNICATION NETWORK

Third Phase – September 2021

IOWA CLEAN AIR ATTAINMENT PROGRAM

A – Introduction

This grant application is for the deployment of the Third Phase of the Traffic Communication Network Master Plan for the City of Ames, utilizing the ITS Systems Engineering Process and the Ames Area Metropolitan Planning Organization (AAMPO) Regional Intelligent Transportation Systems (ITS) Architecture, to provide communication, coordination, and management of the traffic signals systems along the majority of Grand Avenue. This project will also connect the northern portion of Duff Avenue back to Grand along 13th street and 24th street, in addition to connecting the Ames Municipal Golf Course and Fire Station #1 which will be used as Hub locations. This project will continue the program for the City of Ames to improve their ability to monitor, manage, and change traffic signal timings along major arterials in real time to provide optimum traffic signal operations and promote efficient traffic flows. Detailed literature reviews and engineering evaluations have been completed by gbaSI for the City to provide technical information for this grant application.

The majority of transportation related air pollution and emissions occur when traffic is stopped, during initial acceleration after stopping, and during stop and go traffic operations. This Third Phase Deployment will offer opportunities to improve air quality by providing monitoring and management capabilities to City staff for the implementation of optimized signal coordination, reducing congestion, eliminating unnecessary vehicle stops, encouraging uniform traffic flows, and reducing the amount of time traffic waits at signals. This Third Phase Deployment will continue the expansion of the fiber optic communication backbone begun as Phase One and Phase Two of this program and will facilitate the expansion of the Advanced Traffic Management System (ATMS) to other corridors with future projects.

These improvements also fall in line with the City's existing EcoSmart strategy, which strives to reduce energy consumption and decrease the City's carbon footprint. This strategy involves several programs including Smart Ride, which focuses on efforts to reduce carbon emissions through increasing efficiency in transportation services both in city operations and in public services. The City of Ames has already moved to purchasing fuel-efficient vehicles including sub-compacts, hybrids, and an all-electric Zenn vehicle for fuel-efficient driving and carbon footprint reduction.

Another benefit of improving the City's overall Traffic Network and allowing them to remotely manage and monitor their network systems is providing more consistent, reliable, shorter travel times along a corridor for their existing and already thriving city-wide bus transit system (CyRide).

B – Background

The City of Ames has an on-going initiative to create a city-wide high speed fiber optic (FO) communication network that will link existing city traffic signals, school crossing signals and flashers, pedestrian crossings, and traffic data collection devices to allow remote monitoring, communication, and control. Additionally, this fiber network could provide communication to other public facilities, such as Police, Fire and Maintenance buildings, other city government building, schools, and libraries.

Planning, design, and implementation of a city-wide high speed fiber optic network would enable City to more efficiently and responsively manage the City's traffic network and to implement optimized signal coordination, reduce congestion, eliminate unnecessary vehicle stops, encourage uniform traffic flows, and reduce the amount of time traffic waits at signals.

Phase Three of the Ames Traffic upgrade project will expand the communication backbone of the traffic network to enhance and improve the Traffic Department's ability to manage traffic flow and respond to events. This phase also affords upgrades to the traffic management devices and software that will provide the ability institute the latest in traffic management protocols and practices. This will result in improved traffic flow on a regular basis and the capacity to adjust traffic plans to match increased demands created by special events, incidents, or construction. Real time monitoring of traffic operations and improved management practices, such as traffic adaptive programs, will combine to ease congestion and provide management capabilities that will boost the capacity of the current roadways, ease congestion and the resulting air pollution, and reduce fuel consumption. The most noticeable improvement to the general public, will be the reduction in time spent driving to their destination or sitting in traffic. 15% of the intersections included in the Phase Three Deployment were found to be below acceptable levels of operations per the Foward 2045 Final Report (Figure 3-3 - Existing Conditions Intersection Capacity Utilization Analysis Results).

Project Details

This Third Phase will provide a fiber optic connection from South 4th Street and Duff Avenue West down 3rd Street to University. This phase will connect South 3rd Street and Grand Avenue North to Bloomington Road, Grand Avenue and Duff Avenue South down Duff to 13th Street, 13th and Duff West back to Grand Avenue, and Duff and 24th Street West back to Grand Avenue. It will also include connecting City Hall to Duff down 6th Street and connecting Homewood Golf Course to Duff at 24th Street. This fiber expansion project will provide the required communication network necessary to continue the expansion of the traffic network to improve the entire traffic operations for the City of Ames.

This phase expands the network begun in Phases 1 and 2 to include the majority of Grand Avenue, connect the Homewood Municipal Golf Course, and add redundancy to the south of the Lincoln Way and Grand Avenue intersection. This will allow for the advanced Traffic Adaptive traffic management program to interoperate the corridors and coordinate the traffic operations along the corridors to maximize traffic flow and reduce congestion. By coordinating the flow along the individual corridors with the adjoining corridors the Traffic Department will have the ability to further reduce congestion and pollution.

As this project encompasses the corridors noted, there will be ancillary benefits to the city besides the improved traffic management ability. Here are a few examples of possible uses:

- The CCTV capacity can be shared with Police, Fire, Dispatch, and Emergency Services to allow for monitoring of the corridors.
- The dark fiber that is not used by the Traffic Department could be allocated for use by other city departments or governmental agencies. This could eliminate the need to use commercially available fiber and be subjected to future increased cost and limited availability as the demand for fiber increases.
- With the onset of “Smart City” and “Connected Vehicle” technology the dark fiber from this project could be valuable to both governmental entities (City, IDOT, ISU, County, USDA, as examples) and commercial interests.
- The ability to test “Connected Car” technology with a modern traffic system that includes Advanced Traffic Controller capacity could be of great value to Iowa State University in attracting research grants for their Engineering Department.
- The ability to monitor the areas around events (football and basketball games, concerts, and special events) would allow the timely implementation of traffic management measures to expedite the exit of the vehicles associated with these events.

In reality, with the availability of technology today and the explosion of technology that will soon be coming, one of the constant requirements will be a robust fiber optic network. In the vast majority of cases, regardless of the technology, it requires a high-capacity communication medium. The fiber optic backbone that will continue with this project will be a big step in providing that solution for the City of Ames.

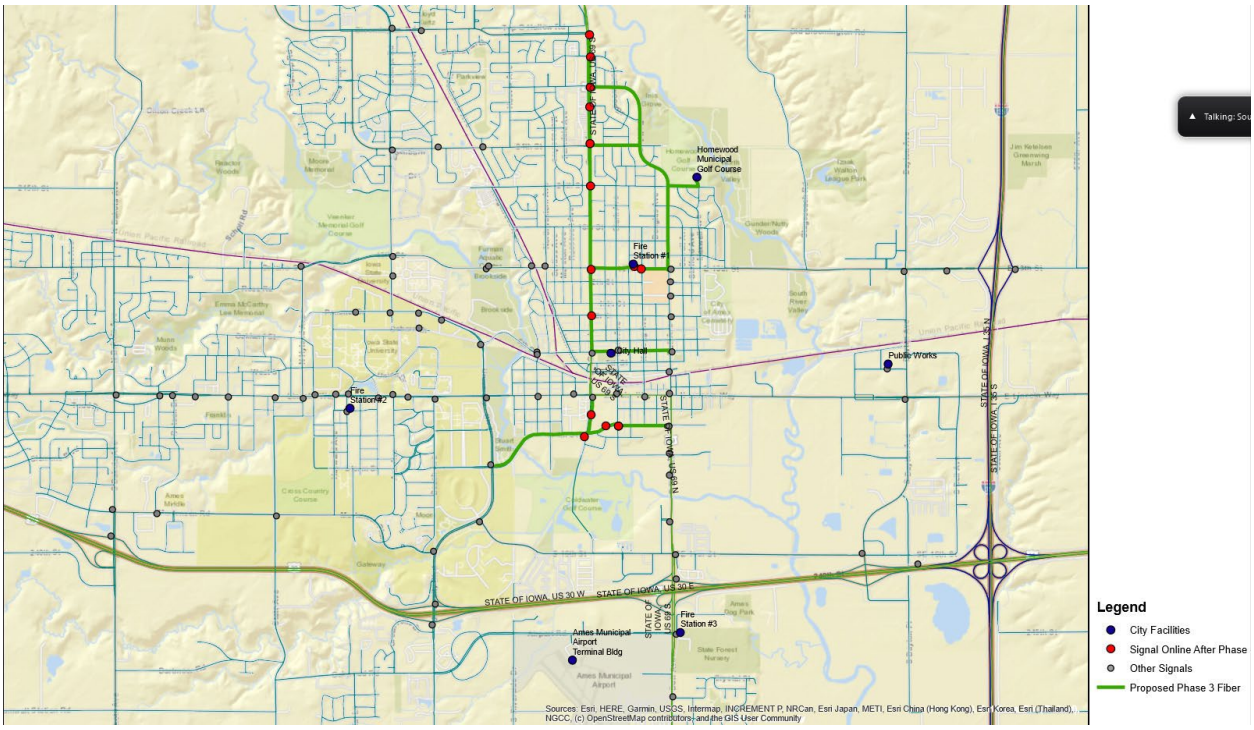


Figure 1 - Third Phase Fiber Routing
(shown in Green)

This Phase also encompasses improvements to the necessary traffic control devices on these corridors and connection to Fire Station #1 and the Municipal Golf Course for added redundancy to the network. This will give the City of Ames the capability of managing traffic flow on a "real time" basis through Traffic Adaptive Programs or by using the VPN function and communication capacities to monitor and adjust timing plans at the individual intersections to meet the traffic demands.

THIRD PHASE DEPLOYMENT

The Third Phase Deployment of the Traffic Network Master Plan will create a management corridor along one of the busiest and most congested traffic corridors in the City of Ames while also providing the core fiber optic communication and traffic management components and software that will be the basis for future expansion of the traffic management system. This phase affords the ability to connect to the Grand Avenue Corridor which will provide a communication pathway to connecting the northern portion of the city.

This communication system will permit the Traffic Department to connect to individual intersections on a "real time" basis which will permit traffic monitoring and changes to the timing of the intersection, if necessary, from the central office location without traveling to the actual intersection. This will provide a much more efficient and accurate method of traffic management

and will reduce stops and delays along the corridor. By being able to remotely monitor and adjust the traffic timing plans the personnel from the Traffic Department will reduce the need to travel to the individual intersections which will save the City time and fuel.

The Third Phase Deployment communication network will allow the Traffic Department to continue to deploy Advanced Traffic Controllers (ATC), along project corridors and have access to the latest traffic management programs and systems. Advanced traffic management programs such as Traffic Adaptive Systems require fast robust communication abilities to function effectively as an exchange of detection information and platoon numbers are passed up and down the corridor. This exchange of detection information and platoon numbers provides the basis for the amount of time allotted to a direction of travel within the intersection and allows the Traffic Adaptive System to adjust traffic plans according to the demands of the traffic flow. Traffic Adaptive Systems operate on a "real time" basis and can provide an efficient and effective traffic management protocol that reduces delays and stops along the traffic corridor. The deployment of ATCs and a fiber optic communications network with connections to Fire Station #1 and the Municipal Golf Course, along with a second connection to City Hall will facilitate the collection of data from the corridor on a live basis, video feed to Police and Fire Departments, and monitoring of traffic flow from areas where congestion or accidents could occur.

The Third Phase Deployment will expand the backbone of the full city-wide traffic management system with additional Hubs connected at Fire Station #1 and the Municipal Golf Course.

C - Implementation Plan

The Ames Traffic Network Master Plan project is made up of several separate components and items that together create an integrated signal communication and coordinated traffic operations system. The key components of the system are:

- Fiber optic cable and conduit system along arterials
- Communication hardware and switches located within new signal cabinets
- Procurement of ATMS management software licenses (as needed) for arterial traffic signal control and CCTV system control

AMES THIRD PHASE DEPLOYMENT

Estimate of Project Implementation Costs – <u>Total for Project - $1,869,100 +/-</u>

Item 1: Fiber Cost: $1,000,000

144 strand Single Mode Fiber Optic Cable
Hand Holes and Conduit Installation
$27 @ foot at approximately 36,000 ft.

Item 2: Fiber Terminations Cost at Cabinets: $48,000

30 terminations per cabinet at 14 cabinets at $50 @ termination - $19,000
Miscellaneous patch cords and splice panels - $29,000

Item 3: Traffic Cabinet and Controller Cost: $478,800

Traffic Signal Cabinet with Controller at 14 cabinets at $32,000 @ cabinet - $448,000
Installation cost at 14 cabinets at $2,200 @ cabinet - $30,800

Item 4: Network Switches Cost: $58,800

2 Layer 3 Network Switches @ $14,000 - $28,000
14 Layer 2 Network Switches @ $2,200 - $30,800

Item 5: Traffic Operations Center Costs: $118,500

Central Office Software (ATMS) for 14 intersections - $31,000
Traffic Adaptive Modules and Intersection Implementation at $5,000 @ - $70,000
One Year Maintenance and Support - $17,500

Item 6: Consultant Costs: $165,000

Infrastructure Design - $110,000
Network Design and Programming - $55,000

Third Phase Deployment Cost Estimate

Items	Description	Quantity	Items	Cost	ICAAP Grant (80%)	City Contribution (20%)	Total Cost
1-6	Third Phase Deployment	1	6	$1,869,100	$1,495,280	$373,820	$1,869,100

D – Project Timeline

The Ames Third Phase Deployment will commence in the summer of 2022 upon award of a grant from the ICAAP program. It is anticipated that this Phase of deployment will be finalized in the Winter of 2022-2023. Future ICAAP grant applications for fiber optic infrastructure, traffic signal upgrades, ATMS software, and TOC improvements are expected to be requested based upon the completion of the First and Second Phase Deployments.

Project Summary

The Third Phase Deployment of the Traffic Network Master Plan will create a management corridor along one of the busiest and most congested traffic corridors in the City of Ames while also providing the core fiber optic communication and traffic management components and software that will be the basis for future expansion of the traffic management system. This communication system will permit the Traffic Department to connect to individual intersections on a "real time" basis which will permit traffic monitoring and changes to the timing of the intersection, if necessary, from the central office location without traveling to the actual intersection. This will provide a much more efficient and accurate method of traffic management and will reduce stops and delays along the corridor.

E – Traffic System Operation and Management

The Traffic Network Master Plan outlines and defines the communication network that would become a critical component of a responsive and efficient traffic management system. The Third Phase Deployment will be the continuation of the process started in Phases One and Two to create a city-wide traffic network and provides value as a stand-alone project because of the reduction in congestion and the accompanying fuel consumption and air pollution. This system would be supervised, maintained, and controlled by the Traffic Operations Department for the City of Ames. The additional capabilities provided by the network will allow the city personnel to upgrade their traffic management practices to include central office abilities along the Grand Avenue corridor. This will allow them to more effectively implement management practices in each of the corridors that will reduce congestion and delays. By allowing communication and control capacities to each intersection the efficiency of both the personnel and the intersection will be vastly improved. The ability of city personnel to monitor intersections from a central office location will save time and money and will more than offset the expenditure of funds from the Traffic Department Budget to match the ICAAP funding.

F - INTEGRATION WITH Forward 2045

The concept of an efficient traffic control system that is connected to a communication network that allows for a more flexible and adaptive approach is a concept that is consistent with the goals put forth by the Ames Area Metropolitan Planning Organization in their Ames Forward 2045 Long Range Transportation Plan. As noted in the minutes for the September 22, 2015 meeting of the AAMPO Transportation Policy Committee:

Traffic Adaptive Signal Systems are included in the Ames Forward 2045 Long Range Transportation Plan as a short term, high priority under the Roadway portion of the plan.

This statement recognizes the importance of the need for a Traffic Adaptive System to help manage the traffic flow within the City of Ames. This Third Phase Deployment is the next step in reaching that goal by including the 14 intersections on the project corridors into the Traffic Adaptive signal system the fiber optic communications network.

The intersections of 13th and Grand Avenue, and 6th and Grand Avenue received unacceptable Level of Service ratings of D/E level in the Ames Forward 2045 Final Report (Figure 3-3 Existing Conditions Intersection Capacity Utilization Analysis Results). The ability to monitor, adjust, and improve the capabilities of the traffic control system provides a key component towards attaining a more efficient and responsive transportation system. That is the overall objective of the Ames Forward 2045 Plan. This can be accomplished by reducing the congestion along the Grand Avenue and Duff Avenue corridors through coordination based on communication. The capacity to communicate between the traffic control mechanisms at the intersections in those corridors and a central traffic management system will provide the city with control and management abilities that will optimize the intersections' capabilities to handle traffic demands more effectively. As a result, Ames will be able to mitigate some of the corresponding pollutants associated with vehicles dealing with congestion and delays.

The project also has 2 intersections that rank in the top 10 intersections for crash frequency according to the Ames Forward 2045 Long Range Transportation Plan (Table 6 Intersection Crash Frequency 2014-2018) along with bringing fiber by the 2nd worst intersection for crash frequency for future expansion (16th and Duff). With an improved traffic flow and better usage of the existing roadway infrastructure provided by a Traffic Adaptive Traffic Management System the frequency of crashes would be expected to be reduced.

City Ranking	Number of Crashes 2009-2013	Location
10	40	Grand Ave / 13th St
15	34	Grand Ave / 20th St
2 (4-Way Stop)	68	Duff Ave / 16th St

G – Air Quality Improvement

The Ames Traffic Network Master Plan defines the requirements and steps necessary to create an integrated traffic control system made up of traffic signals, ITS devices and systems, and other traffic management assets. This central control system will greatly enhance and expand the abilities of the City to quickly understand and respond to traffic operational and safety concerns. The Traffic Network Master Plan will improve the ability of the City of Ames to monitor, manage, and change traffic signal timings along in real time to provide optimum traffic signal operations and promote efficient traffic flows. As the next step in fulfilling the Ames Traffic Network Master Plan, this Phase Three Deployment project will continue the necessary improvements in the traffic and communications systems to facilitate the technology and innovations that will allow for the mitigation of air quality issues as they relate to traffic congestion.

Numerous studies and reports have been completed in the recent past which documents the benefits and effectiveness of advanced signal control systems and TOC management centers. Some studies have shown that delays can be reduces by up to 42% (1). Others noted reduced stops by between 18 – 29% (2). In Tysons Corner, Virginia, system enhancements and management activities decreased total annual emissions VO, CO, VOC, and NOx by 134,600 kilograms (3). A study using ITS Deployment Analysis Software (IDAS) was conducted by Eugene, Oregon to evaluate the potential benefits of a hypothetical adaptive signal control system along one corridor with 8 signalized intersections resulted in a 5:1 benefit-to-cost ratio (4).

In general, most studies have shown an 8-13% decrease in fuel consumption, a 7-14% decrease in emissions, 20-40% reduction in vehicle stops, 10-20% reduction in travel times, 10-15% increases in average speed, and a 20-40% decrease in average delay. While no detailed calculations for potential air quality improvement have been completed for the addition of a TOC and ATMS in Ames, it is inarguable that the implementation of traffic management technologies and procedures will significantly improve traffic operations and decrease vehicle emissions.

Below are the results of emissions calculations and summaries completed for the Grand Avenue Corridor. This shows the emission reductions that the evaluated project corridor could be

expected to experience with the implementation of coordinated signal control of intersections on this route. With the addition of overall signal system management and control practices through the implantation of a citywide ATMS, additional savings will be recognized.

The analysis of the traffic signal operations along this corridor used SYNCHRO models that were developed using the most current peak hour traffic volumes (2019) and signal timings (2021) provided by the City of Ames, along with the existing lane configurations at each intersection. To determine the impacts of the traffic signal interconnection and coordination projects the following assumptions were used:

- Peak hour traffic volumes occur during six hours per weekday and for two hours on Saturdays and Sundays, for a total of 34 hours per week.
- The traffic volumes warrant coordination during 14 hours on weekdays and 10 hours on weekend days. During the other hours of the days, signals would operate more efficiently as free, non-coordinated intersections and no benefits would be expected from signal interconnection.

Analysis of the project corridors determined that the implementation of the managed and coordinated traffic signal system would immediately create a nearly 26% estimated decrease in VOC, CO, and NOx. Using the Iowa DOT 2009 Emission factors (MOBILE6.2 2.5 mph) determined that the implementation of the managed and coordinated traffic signal system would immediately create a nearly 26% decrease in VOC, CO, and NOx. Table 3 – Emissions Reductions for Grand Avenue summarizes the peak hour, daily and yearly emissions estimates, along with the project cost and estimated annual cost per kilogram of the reduced emissions. This project is estimated to reduced 29,10kg of CO, 6,800kg of VOC and 1,500kg of NOx annually. The annual cost per kilogram reduced is estimated to be $4.15 for CO, $12.87 for VOC, and $58.33 for NOx.

Grand Avenue Emission Reduction Summary - total kilogram amounts and percent improvements expected per peak hour, per off-peak hour, per day, and per year. (Synchro estimation)

Table 2 – Project Corridors

Peak Hour Emissions				
	No Build	Build	Delta	% Improvement
CO (kg)	30.92	22.94	-7.98	-25.81%
NOx (kg)	6.02	4.46	-1.56	-25.91%
VOC (kg)	7.17	5.32	-1.85	-25.80%
Off-peak Hour Emissions				
	No Build	Build	Difference	% Improvement
CO (kg)	23.19	17.21	-5.99	-25.81%
NOx (kg)	4.52	3.35	-1.17	-25.91%
VOC (kg)	5.38	3.99	-1.39	-25.80%
Daily Emissions				
	No Build	Build	Difference	% Improvement
CO (kg)	309.2	229.4	-79.8	-25.81%
NOx (kg)	60.2	44.6	-15.6	-25.91%
VOC (kg)	71.7	53.2	-18.5	-25.80%
Yearly Emissions				
	No Build	Build	Difference	% Improvement
CO (kg)	112,858	83,731	-29,127	-25.81%
NOx (kg)	21,973	16,279	-5,694	-25.91%
VOC (kg)	26,171	19,418	-6,753	-25.80%

Table 3 - Emissions Reductions for Grand Avenue
Third Phase Deployment Project of the Traffic Network Master Plan
Ames, Iowa

Percent of Daily Traffic in PM Peak Hour[1]	10%	
PM Peak Hour Volumes	25,000	
Percent Daily Vehicle Delay Reduction	45%	

		Emission Type		
Calculations	**Factor**	**CO**	**VOC**	**NOx**
Before Project				
Existing Delay PM Peak Hour (hr)	178			
Emission Factor[2] (EF), (g/hr)		103.0	33.4	7.5
Peak Hour Emissions = (Peak Delay) * (EF), (g)		18,330	5,950	1,340
Daily Emissions = ((Peak Emissions)/10%), (g/day)		183,300	59,500	13,400
After Project				
New Delay PM Peak Hour (hr)	98.0			
Emission Factor[2] (EF), (g/hr)		103.0	33.4	7.5
Peak Hour Emissions = (Peak Delay) * (EF), (g)		10,090	3,270	740
Daily Emissions = ((Peak Emissions)/10%), (g/day)		100,900	32,700	7,400
Emissions Reduction				
Daily Reduction (g/day)		82,400	26,800	6,000
Annual Reduction = ((Daily) * 365)/1000), (kg/year)		30,100	9,800	2,200

Cost Effectiveness			
Project cost ($)	$1,696,500		
Project Life (yrs)	20		
Annual Project Cost ($/year)	$84,830		
Annual Cost per kg of Reduced Emissions ($/kg/year)	$ 2.82	$ 8.66	$ 38.56

1 - Assumed 10% of daily traffic occurred in PM Peak Hour

2 - Pollutant emission factors obtained from the MOBILE6.2 2.5mph table for Year 2009 as outlined in the MOBILE6 User Information Sheet. Information provided by the Iowa DOT.

REFERENCES

1. *Gresham/Multnomah County Phase 3: Traffic Signal System Optimization.* November 2004, DKS Associate Transportation Solutions, and Siemens Intelligent Transportation Systems.
2. Greenough and Kelman, *ITS Technology Meeting Municipal Need – the Toronto Experience*, in 6th World Congress Conference on ITS, 1999, Toronto, Canada
3. White, J., *Traffic Signal Optimization for Tyson's Corner Network Volume I: Evaluation and Summary*, March 2000, Virginia, DOT
4. *Regional ITS Operation & Implementation Plan for the Eugene-Springfield Metropolitan Area*, November 2002, Oregon Department of Transportation, Prepared by DKS Associates.
5. *Ames Area MPO 2020-2045 Long Range Transportation Plan* September 2020, HDR, page 102,table 19

Form 230017 (05-20)

IOWADOT

PROJECT APPLICATION
IOWA CLEAN AIR ATTAINMENT PROGRAM (ICAAP)

General Information:

Applicant Agency: City of Ames (Public Agency (required)) E-mail: justin.clausen@cityofames.or

Contact Person (*Name and Title*): Justin Clausen - Public Works Operations Manager

Complete Mailing Address: 515 Clark Ave (Street Address and/or Box Number)

City	State	ZIP Code	Daytime Phone
Ames	IA	50010	515.239.5279

If more than one agency or organization is involved in this project, please state the name, contact person, mailing address, and telephone number of the second agency. *(Attach an additional page if more than two agencies are involved.)*

Co-Applicant Agency: (Public Agency, Non-Profit Organization[1], For-Profit Organization[1], or Individual[1]) E-mail:

Contact Person (*Name and Title*):

Complete Mailing Address: (Street Address and/or Box Number)

City	State	ZIP Code	Daytime Phone

Project Information:

Project Title[2]: Alternative Fuels Grant Application - B100 Biodiesel

Project Description (including length, if applicable):

Alternative fuel use of B100 (100% Biodiesel) year round utilizing the Vector system developed by Optimus Technologies. The use of B100 allow for a dramatic decrease in carbon monoxide (CO) emissions, hydrocarbon (HC), and particulate matter (PM), while remaining carbon neutral. Upfitting of 7 heavy duty dump trucks in the City of Ames Municipal Fleet.

*Project priority (1 = highest priority): 2 (a sponsor submitting multiple applications in this funding cycle must assign a numerical rank or priority to each application.)[3]

*Assign the proposed project to one or more of the following categories (check one or more):

- ☐ Transportation-Related Project in the State Implementation Plan (SIP)
- ☐ Transportation Control Measure (TCM)
- ☐ Traffic Flow Improvement (Intersection, Signalization, Other)
- ☐ Planning and Project Development
- ☐ Travel Demand Management (TDM)
- ☐ Transit-Related Improvement
- ☐ Shared-Ride
- ☐ Bicycle or ☐ Pedestrian Facility or Program (select one)
- ☐ Intermodal Freight
- ☐ Passenger
- ☑ Alternative Fuels
- ☐ Vehicle Inspection and Maintenance Program
- ☐ Outreach Activity (Education, Advertising, or Technical Assistance)

*Is the project consistent with the State Implementation Plan for air quality for non-attainment areas? ☐ Yes ☐ No ☑ Not Applicable

*Is the project consistent with the MPO's local congestion management plan? ☐ Yes ☐ No ☑ Not Applicable

*Is the project consistent with the ☐ MPO ☐ RPA ☐ Statewide Long-Range Transportation Plan? ☐ Yes ☐ No ☑ Not Applicable

Notes: [1]Requires public agency as co-sponsor of application.
[2]The term "project" means any ICAAP infrastructure or program proposal.
[3]The Iowa Department of Transportation will use the priority ratings to reflect the sponsor.

Project Costs *(an itemized breakdown must be included on an attached sheet)*:

Total Cost: $93,996.00

Iowa Clean Air Attainment Program Fund Request: $75,196.00

Applicant Match $18,800.00

Projects with a private for-profit co-applicant require a minimum 50 percent applicant match; all other projects require a minimum 20 percent applicant match.

	List All Applicant Match Sources	Amount	Assured or Anticipated (Date Anticipated)
1.	City of Ames Fleet Operating Budget	$18,800.00	July 01, 2021
2.			
3.			

Are any state funds involved in this project? ☐ Yes ● No

If Yes, please explain the source and conditions:

Are any other federal funds involved in this project? ☐ Yes ● No

If Yes, please explain the source and conditions:

Estimated Project Development Schedule:

Design: Start Date: _____ Completion Date: _____

Land Acquisition: Start Date: _____ Completion Date: _____

Construction: Start Date: _____ Completion Date: _____

Has any part of this project been started? ● Yes ☐ No

If Yes, please explain:

The procurement and installation of the alternative fuels system has been completed. The timing of bids for the B100 system missed the application deadline for the previous round of ICAAP Grant Applications. The system is installed and operating on the new trucks in the City's fleet.

How do you plan to measure the success of this project?

The Vector system provides real time data on fuel consumption and usage. All of the data is provided to the vendor and the City of Ames to ensure proper operability. The City of Ames will compare data from previous truck usage and compare data versus the pilot project results indicating the B100 system works and is attaining the results stated in the grant narrative.

Required Documentation and Narrative Information

The following documents and narratives must be submitted with this application. In the upper right corner of each document or narrative write the corresponding letter shown below.

- ☑ A. A NARRATIVE assessing existing congestions/air quality conditions, outlining the concept of the proposed project, and providing adequate project justification. How will this project reduce congestion, reduce travel or single occupant vehicle usage, and/or improve air quality? Which transportation-related pollutant(s) are being addressed: carbon monoxide, ozone, or particulate matter (PM)?
- ☑ B. A DETAILED MAP identifying the location of the project and clearly differentiating the subject project from any past or future project phases.
- ☑ C. An ITEMIZED BREAKDOWN of the total project costs. This documentation does not need to be a detailed, line-item type of estimate. However, it must accomplish two objectives: First, it must show the method by which the cost estimate was prepared; and second, it must enable a reviewer to determine if the cost estimate is reasonable. The manner in which these objectives are achieved may vary widely depending on the type, scope, and complexity of the project. Absent a fully itemized list of costs, some general guidelines for possible methods of estimating each type of project cost are provided on Attachment A.
- ☑ D. A TIME SCHEDULE for the total project development.
- ☑ E. An OFFICIAL CERTIFICATION from the applicant's governing body (authority) that it shall:
  (1) commit the necessary local matching funding for project implementation and
  (2) upon project completion, be responsible for adequately maintaining and operating the project for public use during the project's useful life.
- ☑ F. An ADOPTED FORMAL RESOLUTION from the appropriate MPO or RPA declaring the sponsor's proposed project or program conforms to the MPO's or RPA's regional transportation planning process. (For MPOs, the project or program must be identified in the fiscally constrained transportation plan and, if applicable, the congestion management plan in TMAs.)
- ☑ G. CALCULATIONS for vehicle emission reductions and total project cost-effectiveness for the targeted pollutants. Project applicant must show through a quantitative analysis how many kilograms of pollutant will be reduced (CO, VOC, NOx, and, if applicable, PM). Project sponsor must calculate the cost-effectiveness of the project by: Dividing the total annualized project cost by the number of kilograms per year of pollutant reduced ($ per kg). Applicant must also show all assumptions and source of data used to calculate the estimates. The applicant must use the most current vehicle emission factors developed by the Iowa DNR and consistent with the U.S. EPA's MOBILE 6.2 air quality model. These emission factors are periodically updated and may be obtained from the Iowa DOT's ICAAP website at: https://iowadot.gov/systems_planning/Grant-Programs/Iowa-Clean-Air-Attainment-Program-ICAAP.
- ☑ H. Completed MINORITY IMPACT STATEMENT attached to application.

The award of ICAAP funds; any subsequent funding or letting of contracts for design, construction, reconstruction, improvement, or maintenance; and the furnishing of materials for this project shall not involve direct or indirect interest of any state, county, or city official, elective or appointive. All of the above are prohibited by Iowa Code 314.2, 362.5, or 331.342. Any award of funding or any letting of a contract in violation of the foregoing provisions shall invalidate the award of ICAAP funding and authorize a complete recovery of any funds previously disbursed.

Certification

To the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating local authority. I understand the attached **official endorsement(s)** binds the participating local governments to assume responsibility for adequate maintenance of any new or improved facilities.

If ICAAP funding assistance is approved for the project described in this application, I understand that an executed contract between the applicant and the Iowa DOT is required before such funding assistance can be authorized for use in implementing the project.

Representing the City of Ames
(Name of Applicant's Governing Authority)

Signature — Date: 8/25/2021

Justin Clausen - Public Works Operations Manager
Typed Name and Title
(Governing Authority Official)

August 25, 2021
Date

IOWADOT
Form 105101 (3-18)

Minority Impact Statement

Pursuant to 2008 Iowa Acts, HF 2393, Iowa Code 8.11, all grant applications submitted to the State of Iowa that are due beginning Jan. 1, 2009, shall include a Minority Impact Statement. This is the state's mechanism for requiring grant applications to consider the potential impact of the grant project's proposed programs or policies on minority groups.

Please choose the statement(s) that pertains to this grant application. Complete all the information requested for the chosen statement(s). Submit additional pages as necessary.

☑ The proposed grant project programs or policies could have a disproportionate or unique **positive** impact on minority persons.

Describe the positive impact expected from this project.

The City of Ames has an 11.4% Asian population based off of 2019 Census Estimate data. The advent of the B100 Biodiesel system will impact every citizen in Ames. The trucks which have the B100 system installed are utilized across the entire City of Ames to provide municipal services including street maintenance and snow and ice control. The trucks will operate on streets directly adjacent to areas in Ames where minority individuals live and the trucks will also operate on streets that lead to educational, occupational, and social services that the minority community will utilize. The project will reduce diesel engine emissions associated with the the daily operations of the City's Public Works Department across the board and will positively impact the minority communities and all that live, work, or play within the City of Ames, regardless of race or gender. This grant application truly serves all citizens and visitors in Ames and will provide a positive impact to all.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☑ Asians

☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other_____

☐ The proposed grant project programs or policies could have a disproportionate or unique **negative** impact on minority persons.

Describe the negative impact expected from this project.

Present the rationale for the existence of the proposed program or policy.

Provide evidence of consultation with representatives of the minority groups impacted.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☐ Asians
☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other _____

☐ The proposed grant project programs or policies are **not expected to have** a disproportionate or unique impact on minority persons.

Present the rationale for determining no impact.

I hereby certify that the information on this form is complete and accurate, to the best of my knowledge.

Name Justin Clausen

Title Public Works Operations Manager

Definitions

"Minority Persons," as defined in Iowa Code 8.11, means individuals who are women, persons with a disability, Blacks, Latinos, Asians or Pacific Islanders, American Indians, and Alaskan Native Americans.

"Disability," as defined in Iowa Code 15.102, subsection 7, paragraph "b," subparagraph (1):
b. As used in this subsection:
(1) *"Disability"* means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of the individual, a record of physical or mental impairment that substantially limits one or more of the major life activities of the individual, or being regarded as an individual with a physical or mental impairment that substantially limits one or more of the major life activities of the individual.

"Disability" does not include any of the following:
(a) Homosexuality or bisexuality.
(b) Transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments or other sexual behavior disorders.
(c) Compulsive gambling, kleptomania, or pyromania.
(d) Psychoactive substance abuse disorders resulting from current illegal use of drugs.

"State Agency," as defined in Iowa Code 8.11, means a department, board, bureau, commission, or other agency or authority of the State of Iowa.

REQUEST FOR IOWA'S CLEAN AIR ATTAINMENT PROGRAM (ICAAP)

ATTACHMENT A

Itemized breakdown of total project costs guidelines.

Construction costs
These may be based on historical averages for entire projects of similar size and scope. Examples include:

- Typical cost per mile of trail (e.g., $200,000 per mile for moderate terrain and limited number of structures).
- Typical cost per square foot of bridge deck.
- Typical cost per square foot of fiber optic traffic signal interconnect cable (i.e., $178,000 per mile).
- Typical cost per traffic signal upgrade (i.e., $163,000 per lump sum signal bid item).

Design/Inspection costs
These may be estimated based on the following typical percentages of construction costs, such as:

- 8 to 10 percent for preliminary up through final design and letting activities.
- 12 to 15 percent for construction inspection activities.

Right of way acquisition costs
These may be estimated based on:

- Impact and description of impact.
- Typical cost per square foot for permanent right of way.
- Typical cost per square foot for temporary easements.

Utility and railroad costs
These may be estimated based on:

- Impact and description of impact.
- Typical cost per linear foot of relocated or reconstructed facility (i.e., track, pipe, electrical lines).
- Typical cost per installation (i.e., railroad switches, utility poles, transformers, control boxes).

Indirect costs
If indirect costs are involved (e.g., wages):

- Estimated hours.
- Estimated hourly rate, salary.
- Estimated fringe, direct.
- Other direct cost estimate.
- Other indirect cost estimate.

CITY OF ames™

Alternative Fuels Grant Application

B100 Biodiesel

October 2021

Iowa Clean Air Attainment Program

INTRODUCTION

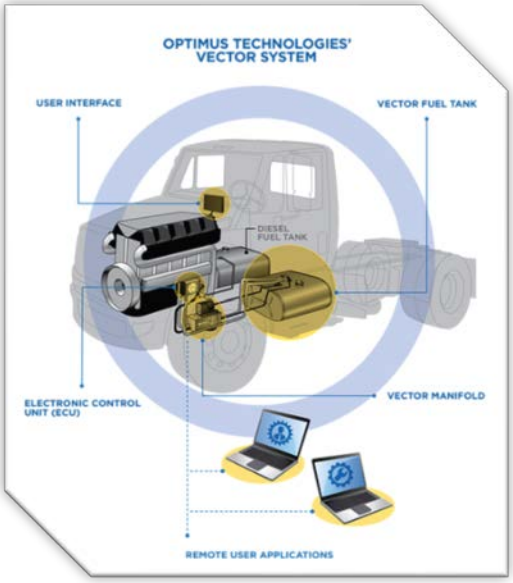
This grant application is for the installation of an alternative fuel source for City of Ames Public Works Operations heavy-duty trucks. The trucks are outfitted with an advanced fuel system technology named Vector, developed by Optimus Technologies of Pittsburg, Pennsylvania. This system allows standard diesel engines to operate on 100% biodiesel (B100) year-round regardless of ambient air temperatures. Biodiesel solutions allow for a dramatic decrease in carbon monoxide (CO) emissions, hydrocarbon (HC), and particulate matter (PM), while remaining carbon neutral. The City of Ames is leading the way in the state of Iowa as the first fleet to field test and install the B100 system in a partnership with Renewable Energy Group (REG) which is headquartered in Ames, IA. To date, multiple local, county, and state agencies are making preparation to follow in the City's footsteps to bring this technology to additional markets in Iowa and nationwide.

This technology is in line with the City's existing EcoSmart strategy, which strives to reduce energy consumption and decrease the City's carbon footprint. The City is in the early steps of a Climate Action Plan to further reduce the impact of City operations. A recent greenhouse gas inventory indicated that transportation related emissions accounted for 13% of greenhouse gas emissions within the City. The transition to B100 aligns well with reducing emissions from City operations.

BACKGROUND

The City of Ames owns and operates 11 heavy-duty trucks in the maintenance of its transportation system. These trucks are a combination of single-axle and tandem-axle dump bodies. The trucks are utilized in routine road maintenance activities such as pothole repair, pavement patching, material hauling, and snow and ice control activities. As such, these trucks are tasked with various activities throughout the day that vary from season to season. The trucks operate in low-speed environments, with higher engine revolutions per minute (RPM), and at the extreme ends of the weather spectrum when compared with similar diesel truck engines. These factors are important to consider when looking at fuel economy and emissions because these trucks are used in service and maintenance of the transportation system year-round. The trucks are purchased and maintained by the City with an expected life span of 10 years before replacement. Each truck is inspected at least twice per year by the City's Fleet Services

Department and all preventative and routine maintenance is performed as per the manufacturer's recommendations.



Courtesy of Optimus Technologies

The City of Ames began partnering with REG in the spring of 2019 to explore options to continue to reduce emissions in the City's municipal fleet. A pilot project to test B100 operations in a municipal fleet utilizing the Vector system developed by Optimus Technologies was proposed as an option for the City to explore. The Vector system leverages the engine's ability to burn standard diesel fuel to bring the engine to a warm operating state, then seamlessly switch over to the B100 system once the appropriate operating temperature is reached. A similar process happens again at engine shut down. REG was particularly interested in a fleet in a northern climate with snow and ice control responsibilities to gain additional data on the operational use of B100 during variable climate conditions. The benefits of utilizing B100 included lower tailpipe emissions, utilizing a local renewable fuel source, and partnering with a local company on sustainability efforts.

Initially the City had concerns with the B100 due to the tendency for biodiesel fuels to solidify into a gel in cold temperatures. These trucks are utilized heavily during the winter to plow snow and provide ice control in the City's transportation network. The City's Snow and Ice Control Policy's goal is to provide safe and efficient movement of the traveling public and emergency response vehicles. The use of B100 was predicated on not having any adverse impact on City operations while enjoying the environmental benefits of utilizing B100 fuel. Thus, no downtime of equipment would be tolerated due to the fuel issues with B100.

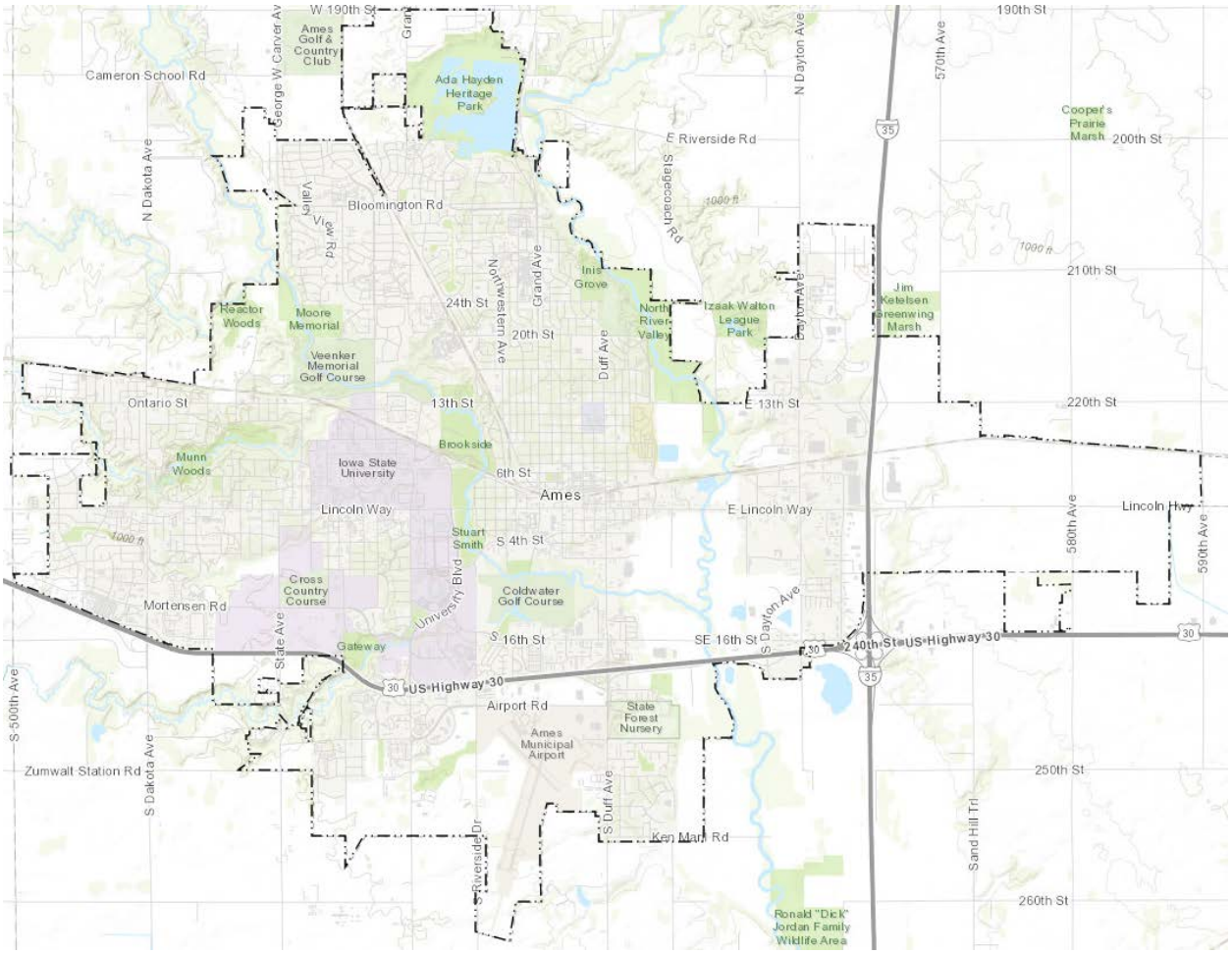
City staff vetted the information and made recommendations to the City of Ames City Council which gave approval for this pilot in late summer of 2019. The installation on five heavy-duty trucks began in early 2020. Only a few weeks after the initial installation the trucks were operating in air temperatures of 10 degrees below zero, Fahrenheit with no issues due to fuel gelling or operating performance. Engine and operating data were uploaded in real time to Optimus Technologies, REG, and City Staff to verify performance data and ensure the system was working properly at all times.

Through July 1, 2021, over 13,000 gallons of B100 fuel, nearly 54,000 road-miles, and over 6,000 engine hours have been recorded on the pilot trucks with no reported issues with the B100

system, no loss in performance, and successful operating temperatures of 18 degrees below zero, Fahrenheit.

CITY OF AMES MAP

The trucks in this grant application will be used across the entire City of Ames 517 lane-miles of transportation network.



C – Itemized Breakdown
D – Time Schedule

PROJECT COST DETAILS AND SCHEDULE

The City's schedule for replacement of heavy-duty trucks included 7 trucks for the 2020/2021 fiscal year (ending June 30, 2021). The City began planning for the replacement of the trucks in mid-2020 and based off the data and early success of the B100 pilot project, the City included an option in the bid documents to upfit the replacement trucks with the B100 system. Bids were received in July of 2020 with the selected vendor of O'Halloran International of Altoona, IA. The City selected the option to install the Optimus Technologies Vector System during the building of the new trucks at a **cost of $13,428 per truck or $93,996 for all 7 trucks** (see appendix 1). Bids were solicited directly from the manufacturer. Because there are no direct comparisons with Vector System a detailed bid analysis is difficult to perform, however the project was bid in accordance with the City of Ames Purchasing Policy and Procedures and multiple bids were received in the offering.

The 7 trucks were assembled and delivered to the City of Ames and put into service in March and April of 2021. The older trucks were sold and are no longer part of the City of Ames fleet making this project ineligible for Diesel Engine Reduction Act (DERA) funding. Due to the timing of application to meet Ames Area MPO meetings, a grant submission was not submitted following receiving of bids in July of 2020 for funding in 2021. Therefore, this grant application is the first available timeframe for submission. In order to not delay the implementation of the project, the City of Ames Fleet Services department backfilled the funding request until a determination to award funding to this project is made by ICAAP program staff.

E – Official Certification
F – Formal Resolution

COMMITMENT OF MATCH FUNDING AND MAINTENANCE

The City of Ames annually budgets maintenance, fuel, and replacement funding for its equipment in its fleet. The City has a fleet maintenance program and staffing to provide the necessary service for B100 alternative fuel project. The City's Fleet Service Department has allocated funding for the required local match of the project and is committed to the long-term success of the B100 project. The City Council's commitment is affirmed during the purchase of the equipment to maintain it for the life cycle of the operating unit and during the annual approval of the City's operating budget (see appendix 2 and 3).

ADOPTION OF FORMAL RESOLUTION FROM AAMPO

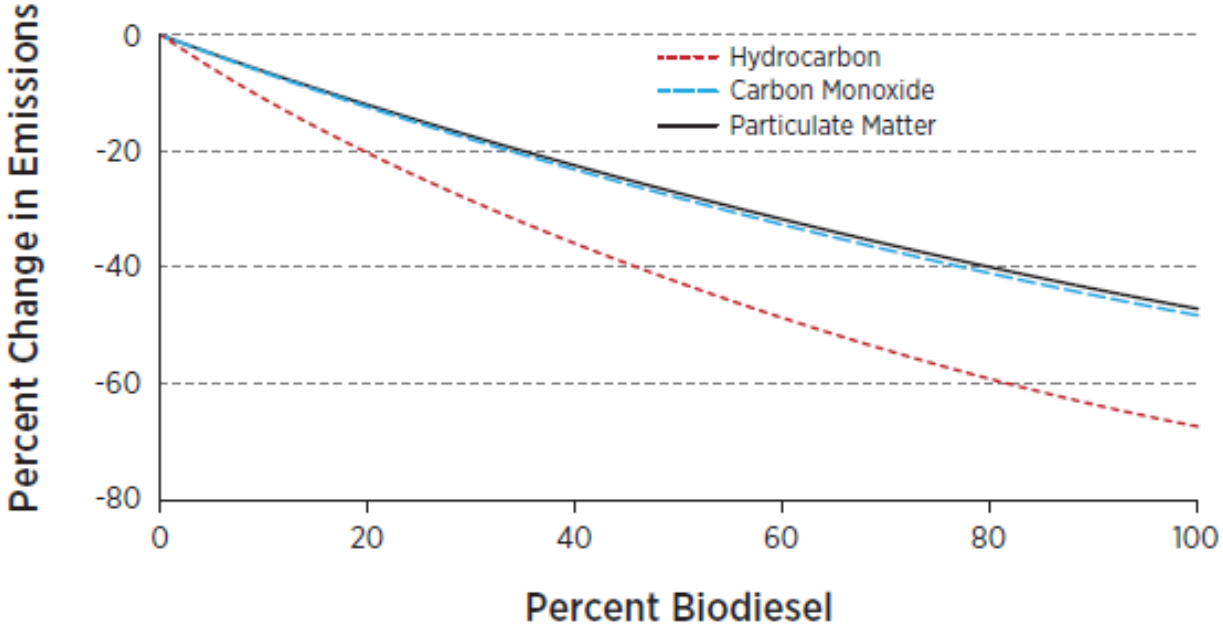
This application was presented to the Ames Area Metropolitan Planning Organization (AAMPO) Technical Committee on September 2, 2021 and forwarded to the Policy Committee for formal approval on September 14, 2021 (see appendix 4).

AIR QUALITY IMPACT AND CALCULATIONS

Because the seven new trucks that will utilize B100 are directly replacing the seven older trucks, a comparison can be made between emissions of the older trucks versus the newer trucks.

There is a natural progression towards improved emission requirements when replacing older equipment with newer equipment. The advances in technology between early generation Tier 4 diesel engines and the modern Tier 4 diesel engines provide small incremental improvements in emissions. A dramatic change happens when considering the use of alternative fuels such as B100 in the same engines.

Figure 1. Average Emission Impacts of Biodiesel for Heavy-Duty Highway Engines



Environmental Protection Agency. Draft Technical Report, *A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions*, EPA420-P-02-001, 2002.

Courtesy of US Department of Energy Clean Cities Technical Response Service

The City of Ames has 517 lane-miles of streets in its transportation system. Those 517 lane-miles are further broken down into 35% residential streets, 16% collector streets, and 48% arterial streets. Baseline calculations were performed at typical operating speeds for each street classification of 20 mph, 25 mph, and 30 mph respectively. Each truck averages 7,500 miles driven per year. Emission calculations (chart 1) were performed utilizing factors from Environmental Protection Agency's (EPA) Mobile 6.2 2008 areawide emission factors[1].

Annual Mileage									
7500	Miles per truck								
7	Trucks								
52500	Miles for all trucks								
	20 Mph	35%	Residential						
	25 Mph	16%	Collector						
	30 Mph	48%	Arterial						
Residential Streets Baseline Condition HDDV									
		Factor (g/Mi)							
	CO	3.076	56521.5						
	NOX	8.03	147551.3						
	CO2	1419.7	26086988						
	Total PM	0.2058	3781.575						
	VOC (HC)	0.607	11153.63						
Collector Streets Baseline Condition HDDV						**Total Baseline Emission Factors**			
		Factor (g/Mi)							**(grams)**
	CO	2.436	20462.4				**CO**		**129047**
	NOX	7.535	63294				**NOX**		**400400**
	CO2	1419.7	11925480				**CO2**		**73788908**
	Total PM	0.2058	1728.72				**Total PM**		**10696**
	VOC (HC)	0.502	4216.8				**VOC (HC)**		**26131**
Arterial Streets Baseline Condition HDDV									
		Factor (g/Mi)							
	CO	2.066	52063.2						
	NOX	7.522	189554.4						
	CO2	1419.7	35776440						
	Total PM	0.2058	5186.16						
	VOC (HC)	0.427	10760.4						

Table 1 – Baseline Emission Calculations

Biodiesel emission reduction factors have been established by the EPA[2]. An online calculator sponsored by the EPA can be used to calculate the reduction in emissions for CO, NOx, PM, and Hydrocarbons (HC). The online calculator can be downloaded at https://www.epa.gov/sites/default/files/2016-03/biodiesel_calc.xls

Biodiesel Emission Reduction Calculation Spreadsheet

Reductions must be calculated for each different biodiesel fuel.
The default biodiesel fuel is soybean modified, average (vs. "clean") base fuel.
Biodiesel fuels that are not the default will be addressed through the calculations.
The base fuel to which the biologically derived oils have been added is a "clean" fuel ONLY IF:
- It is equal to Calif. highway fuel, or if it meets all of following
- Cetane number > 52, and
- Aromatics < 25 vol%, and
- Specific gravity < 0.84

If the base fuel is clean, place a 1 in the Clean field below, otherwise enter 0.

If the biological oil source is soybean oil, place a 0 in both the Rapeseed and the Animal fields below.
If the biological oil source is rapeseed or canola oil, place a 1 in the Rapeseed field below, and 0 in the Animal field.
If the biological oil source is animal based (grease, lard), place a 1 in the Animal field below, and 0 in the the Rapeseed field.

In the % Biodiesel field enter volume percent of biologically derived oils (e.g., B20, enter 20)

Enter the k1, k2, k3, and k4 factors for the year of interest from the Yr_Factors table (next worksheet).
Reductions will be rounded down to the next whole number, i.e., X.01 to X.99 becomes X.
Increases will be rounded up to the next whole number.
Notes:
- Fuel economy will be reduced when using biodiesel.
- The calculation is 4.6% to 10.6% times biodiesel vol%.
- Animal based biodiesel is slightly worse than plant based.
- The fuel economy decreas is calculated to the right.

Factors	Arguments to Enter
% Biodiesel	100
k1	0.09
k2	0.06
k3	0.05
k4	0.45
Clean	0
Rapeseed	0
Animal	0

	Percent (%)				
	PM	CO	NOx	HC	Fuel Economy Decrease
Calculated Reductions	-37	-41	6	-69	4.6 to 10.6

Note: A positive number, above, is an increase in the pollutant.

Table 2 – EPA Biodiesel Emission Reduction Calculations

Results in Table 2 yields the calculated reduction in tailpipe emissions for the selected compounds. Comparing the baseline emissions with emissions using B100 results in a quantitative analysis on the emissions and further cost effectiveness in reductions.

Total Baseline Emission Factors			B100 Reduction		Year 1 Reduction
		(grams)			(Kg)
	CO	129047	-41%		**52.909311**
	Total PM	10696	-37%		**3.95768835**
	VOC (HC)	26131	-69%		**18.03026925**
Cost Effectiveness of Reductions			**Year 1 Cost**		**Cost/Kg**
	CO	52.90931	$ 9,399.60		**$ 177.65**
	Total PM	3.957688	$ 9,399.60		**$ 2,375.02**
	VOC (HC)	18.03027	$ 9,399.60		**$ 521.32**

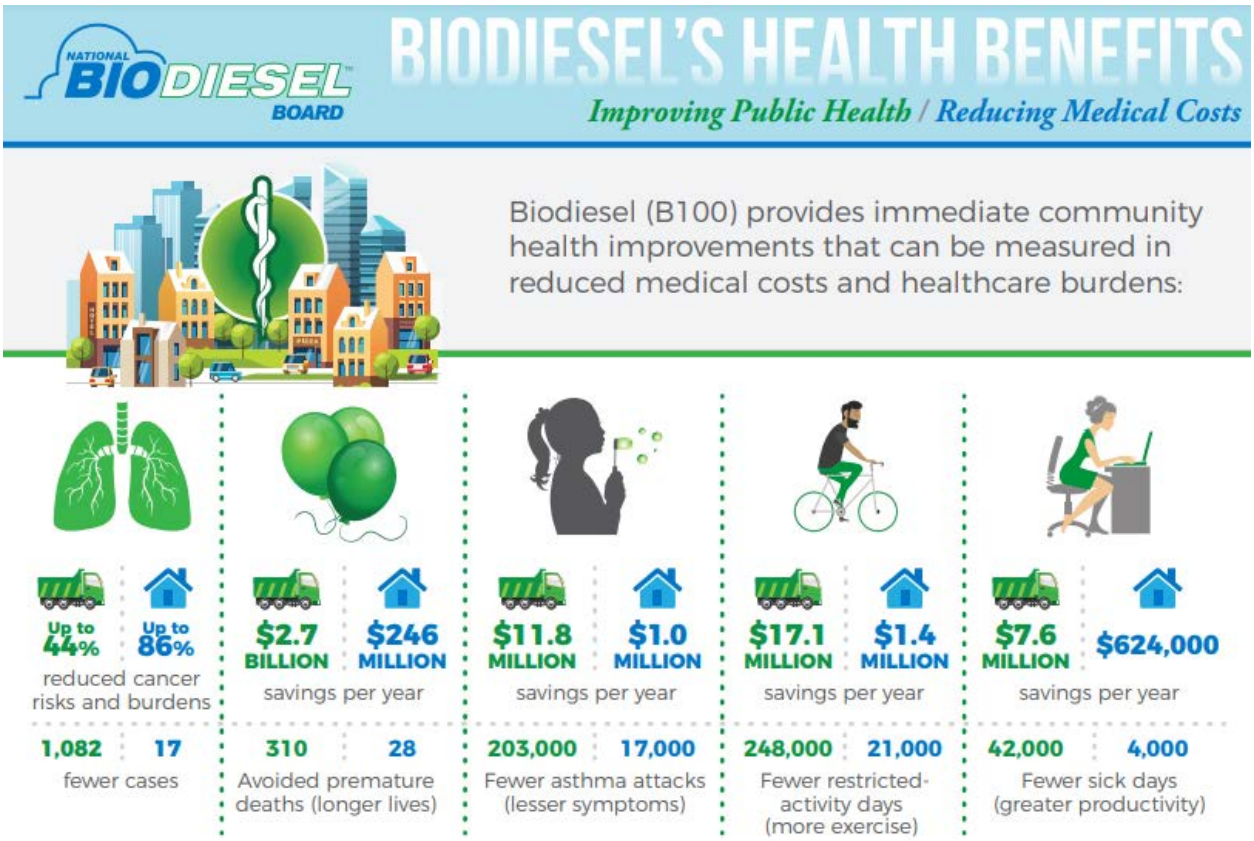
Table 3 – B100 Emission Reduction Cost Effectiveness

Research completed by REG concurs with the emission reductions by the EPA as demonstrated in Table 2. That research however has indicated that NOx emissions coming out of the tailpipe are relatively unchanged with or without biofuels so long as the vehicle engine is a Tier 4 Final engine (current technology). The vehicle emission control devices achieve the same low tailpipe NOx emissions with biofuel as with petroleum diesel. The seven new trucks are all Tier 4 Final engines. Thus, there is no change in NOx emissions to calculate. B100 reduces PM from diesel exhaust when compared to petroleum diesel fuels. This is achieved because of B100's higher cetane rating which results in a shorter ignition time in a diesel engine. The quicker ignition results in a more complete combustion cycle that produces fewer unburned particles leading to the reduction in PM emissions. As a result of the reduction in PM, there are fewer regeneration cycles necessary for the Tier 4 engines which also reduces unproductive idle time when the engine enters regeneration mode. Sulfur emissions are nearly eliminated in B100 uses and Sulfur is not blended into B100 fuels to increase lubricity. B100 naturally increases lubricity in the engine due to the composition of the B100 fuel.

B100 diesel fuel contains slightly less energy on a volumetric basis when compared to petroleum-based diesel fuels. As such, the calculations in Table 2 indicate that a reduction in fuel economy of 5% to 11% can be expected. Data in the pilot program indicated that the gallons of B100 burned per hour of engine run-time was equal to that of petroleum-based diesel fuels. Initial impressions from the pilot study are that because of the low speed in urban areas and high engine RPM operating conditions that are inherent in street maintenance and snow and ice control operations that fuel economy of municipal trucks used in these applications are likely not to change due to their usage of the alternative B100 fuel. Therefore, information indicating that B100 fuels lead to a reduction in fuel economy of 5% to 10% are likely not applicable in this use

case. This observation is buttressed by a report issued by the Fuels Institute on Biomass-Based Diesel in 2020 indicating that 74% of 39 fleets utilizing Biodiesel in California saw no appreciable reduction in fuel economy[3].

Studies have shown Biodiesel can directly affect the health and safety of the public as well through reduced emission and cleaner air quality by targeting hard to decarbonize markets such as heavy-duty transportation. Reduction in cancer causing agents, fewer sick days, and an increase in air quality promoting more outdoor exercise were all demonstrated in the study[4].

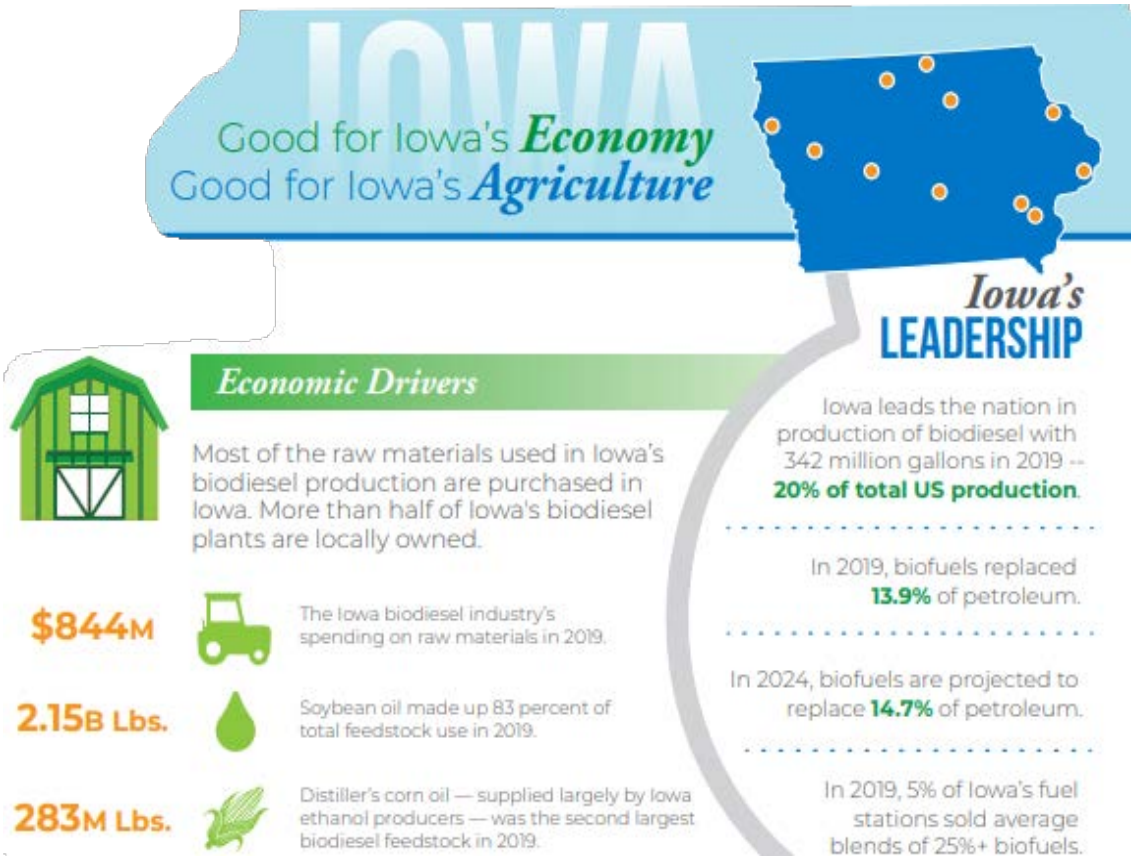


Courtesy of National Biodiesel Board

One of the areas that B100 can help battle climate change is the reduction in sequestered Carbon Dioxide (CO_2). CO_2 emissions are a leading cause of anthropogenic climate change. While burning B100 biodiesel still produces CO_2 through emissions, it does not add any CO_2 to the atmosphere due to the biogenic lifecycle of B100. For example, in a soybean based B100, the carbon needed to allow the soybean plants to grow is already in the atmosphere. That carbon is captured by the soybean plant and used by the plant to grow and ripen. The plant is harvested and refined into B100. When it is burned in the diesel engine that carbon is released back into the atmosphere and used by the plant again. In other words, the carbon that is being used has been sequestered by the plant for only a matter of months. Whereas in a petroleum-based diesel, the carbon has been sequestered for likely thousands to millions of years. It is mined and

released through burning in a diesel engine thus adding to the total carbon in the atmosphere. The ability for B100 to dramatically reduce the addition of carbon in the atmosphere **by up to 86%**[5] (based on the California Air Quality Bureau's CA-GREET Model) when compared to petroleum diesel fuels is key tool in the effort to battle climate change while still providing municipal services. Results in Table 1 indicate that nearly 74 metric tons of CO_2 are produced annually by these seven trucks. The 86% reduction would equate to ***saving 64 metric tons of CO_2*** being released into the atmosphere on an annual basis.

In addition to the direct tailpipe emission impacts of the B100 fuel program noted above, the fuel that is utilized by the City of Ames is locally produced in Ralston, IA out of soybean agricultural products. Because the source material for soybeans are locally grown, harvested, and refined into B100 fuel, the impacts of the use of B100 is felt locally in Iowa. A 2014 study indicated that Biodiesel production alone contributes $471 million to the Iowa GDP and over 4,000 full time equivalent jobs[6].



Courtesy of National Biodiesel Board

REFERENCE MATERIALS:

1 – Iowa Department of Transportation. (n.d.). *Iowa Clean Air Attainment Program*. https://iowadot.gov/systems_planning/Grant-Programs/Iowa-Clean-Air-Attainment-Program-ICAAP

2 – United Stated Environment Protection Agency. (n.d.). *Verified Technologies for SmartWay and Clean Diesel*. https://www.epa.gov/verified-diesel-tech/various-technology-biodiesel-1-100

3 – Brown, T. (March, 2020). Fuels Institute. *Biomass-Based Diesel, March 2020, A Market and Performance Analysis* https://www.fuelsinstitute.org/getattachment/ed72f475-8038-415c-b1fd-591b213d4815/Biomass-Based-Diesel_Report.pdf

4 – Lyons, et al, (March, 2021). Trinity Consultants. National Biodiesel Board. *Assessment of Health Benefits From Using Biodiesel as a Transportation Fuel.* https://www.biodiesel.org/docs/default-source/trinity-study/trinity-nbb-tranportation-health-risks-review-v1-03.pdf?sfvrsn=ec0f774a_2

5 – National Biodiesel Board. (n.d.). *Biodiesel Fueling Sustainability Fact Sheet.* https://www.biodiesel.org/docs/default-source/fact-sheets/biodiesel-fueling-sustainability c11800da819a4ec5a6cd5adbe80d07ec.pdf?sfvrsn=48441133_9

6 – Urbanchuk, J. (January, 2015). Iowa Renewable Fuels Association. *Importance of the Renewable Fuels Industry to the Economy of Iowa.*

Appendix 1

Bid results for Optimus Technologies Vector System

City of Ames, Iowa
RFQ No. 2021-001

BID FORM

Company Name of Bidder Henderson Products with O'Halloran International

SECTION 3 PRICING: UPFIT OPTIONAL ITEMS

OPTION 1

QTY	DESCRIPTION	UNIT COST	TOTAL COST
Up to 7 EA	Provide and Install Optimus Technologies Vector Fuel Management System	$ 13,428.00	$ 93,996.00

**Option 1 Quoted through chassis dealer

OPTION 2

QTY	DESCRIPTION	TOTAL COST
1 EA	Provide and install an Asphalt hot plate on Truck #1269 Install Hot Patch Gen 2 by Five D Industries	$ N/A - see note below

**Option 2 Note: Henderson is not a dealer for Five D Industries equipment and cannot sell to end users. The City would have to purchase through the local dealer and install at their facility.

OPTION 3

QTY	DESCRIPTION	UNIT COST	TOTAL COST
Up to 7 EA	Install the Laser Line GL3000 PM-C Guidance System for the wing plow (Laser Provided)	$ 725.00	$ 5,075.00

**Note - City must supply laser to Henderson for install

OPTION 4

QTY	DESCRIPTION	COST DIFFERENCE
1 EA	Cost DIFFERENCE to upfit with a hook-Lift loader and 10' stainless-steel dump body in lieu of the permanent 10' body	$ 23,916.00

quoting Swaploader SL-2418 hooklift

Price is in addition to $82,208.00 for single axle packages

OPTION 5

QTY	DESCRIPTION	UNIT COST	TOTAL COST
1 EA	12-Foot hook-lift flat bed, constructed from mild steel, includes 6 ea. in-floor 18,000 LB. rated D-Ring, Bed and bulkhead 10 ga. treadplate, 48" bulkhead, HD frame, and side post holes.	$ N/A	$ N/A - see note below

Make: Not available through Henderson

Model: Not available through Henderson

Option 5 Note: Henderson is not a dealer for flat beds. Customer would have to purchase flat bed from local dealer and install at their facility. Hooklift hoist drawing available to match a-frame on flatbed to hoist.

Appendix 2

City Council Resolution awarding bids of Optimus Technologies Vector System

RESOLUTION NO. 20-443

RESOLUTION AWARDING CONTRACT TO O'HALLORAN INTERNATIONAL OF ALTOONA, IOWA, TO INSTALL THE OPTIMUS VECTOR SYSTEM ON THE SEVEN CHASSIS FOR YEAR-ROUND USE OF B100 BIO-DIESEL FOR THE CITY OF AMES, IOWA

WHEREAS, there are seven single-axle and five tandem axle snowplow dump trucks used by the Public Works Department for street maintenance and snow removal operations; and,

WHEREAS, these trucks, which operate year-round, are essential to maintaining the City's streets, utilities, and public areas; and,

WHEREAS, six single-axle trucks, one tandem axle truck, and snow removal equipment are scheduled for replacement in FY 2020/21; and,

WHEREAS, the seven new replacements trucks will be equipped with a stainless-steel dump body, pre-wet, and brine system, wing plow, front plow mounting provision (the existing front plows will be re-used), hydraulic control system, GPS plow/spreader status, and vehicle tracking system, and laser wing plow guide; and,

WHEREAS, three of the trucks being replaced have underbody plows and these trucks have demonstrated their value in removing hard-packed snow; therefore all seven of the new trucks are budgeted to be equipped with an underbody plow; and,

WHEREAS, an improved configuration to the plows will be implemented; the wing plow will be mounted on the right rear corner of the truck instead of the front; which will allow the wing plow to move the snow from the underbody plow as well as the front plow; and,

WHEREAS, Public Works staff identified significant savings with these trucks; and,

WHEREAS, the sand/salt spreader will be tailgate-mounted unit rather than the V-box spreader currently being used by the City; and,

WHEREAS, a tailgate spreader costs one-third of the price, and needs only a fraction of the storage space in the off-season, and requires significantly less maintenance; and,

WHEREAS, the savings from the purchase of seven tailgate spreaders in lieu of the V-box is approximately $91,000, and the savings in annual maintenance is estimated at $9,500 for the seven spreaders; and,

WHEREAS, bids were solicited separately for the truck chassis and the necessary equipment to outfit each truck; and,

Appendix 2 (continued)

City Council Resolution awarding bids of Optimus Technologies Vector System

WHEREAS, in August 2019, the City Council approved the B100 Pilot Project and agreed to equip five City snowplow dump trucks with a B100 fuel system; and,

WHEREAS, the equipment cost $12,000 for each truck and was paid for by Ames-based Renewable Energy Group (REG); and,

WHEREAS, REG also agreed to provide the City with a B100 storage tank and B100 fuel at a discounted rate, in exchange for the City testing the use and performance of the system; and,

WHEREAS, based upon the success, City staff has requested a quote to install the Optimus Fuel Management System on the seven new trucks being purchased.

WHEREAS, O'Halloran International has offered to defer payment for the Optimus installation for 12 months while grant applications are completed and funding can be identified.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Ames, Iowa, that a contract to O'Halloran International of Altoona, Iowa, to install the Optimus Vector system on the seven chassis for year-round use of B100 bio-diesel in the amount of $93,996 is hereby approved.

ADOPTED THIS 18th day of August, 2020.

Diane R. Voss, City Clerk

John A. Haila, Mayor

Introduced by:	Betcher		
Seconded by:	Corrieri		
Voting aye:	Beatty-Hansen, Betcher, Corrieri, Gartin, Junck, Martin		
Voting nay:	None	Absent:	None

Resolution declared adopted and signed by the Mayor this 18th day of August, 2020.

Appendix 3

City Council Resolution Approving Operating Budget for Fiscal Year 2021/2022

3/10/2021 Local Government Property Valuation System

The City of : AMES County Name: STORY COUNTY
Adopted On: 3/9/2021 Resolution: 21-024

The below-signed certifies that the City Council, on the date stated above, lawfully approved the named resolution adopting a budget for next fiscal year, as summarized on this and the supporting pages.

		With Gas & Electric		Without Gas & Electric
Regular	2a	3,257,725,869	2b	3,250,071,127
DEBT SERVICE	3a	3,338,846,059	3b	3,331,191,317
Ag Land	4a	3,371,719		

City Number: 85-811
Last Official Census: 58,965

TAXES LEVIED

Purpose	Dollar Limit	ENTER FIRE DISTRICT RATE BELOW			Request with Utility Replacement	Property Taxes Levied		Rate
Regular General levy	8.10000			5	18,079,685	18,037,212	43	5.54979
Non-Voted Other Permissible Levies								
Contract for use of Bridge	0.67500			6		0	44	0.00000
Opr & Maint publicly owned Transit	0.95000			7	1,982,240	1,977,571	45	0.60847
Rent, Ins. Maint of Civic Center	Amt Nec			8		0	46	0.00000
Opr & Maint of City owned Civic Center	0.13500			9		0	47	0.00000
Planning a Sanitary Disposal Project	0.06750			10		0	48	0.00000
Aviation Authority (under sec.330A.15)	0.27000			11		0	49	0.00000
Levee Imps. fund in special charter city	0.06750			13		0	51	0.00000
Liability, property & self insurance costs	Amt Nec			14		0	52	0.00000
Support of a Local Emerg Mgmt Comm.	Amt Nec			462		0	465	0.00000
Voted Other Permissible Levies								
Instrumental/Vocal Music Groups	0.13500			15		0	53	0.00000
Memorial Building	0.81000			16		0	54	0.00000
Symphony Orchestra	0.13500			17		0	55	0.00000
Cultural & Scientific Facilities	0.27000			18		0	56	0.00000
County Bridge	As Voted			19		0	57	0.00000
Missi or Missouri River Bridge Const.	1.35000			20		0	58	0.00000
Aid to a Transit Company	0.03375			21		0	59	0.00000
Maintain Institution received by gift/devise	0.20500			22		0	60	0.00000
City Emergency Medical District	1.00000			463		0	466	0.00000
Support Public Library	0.27000			23		0	61	0.00000
Unified Law Enforcement	1.50000			24		0	62	0.00000
Total General Fund Regular Levies (5 thru 24)				25	20,061,925	20,014,783		
Ag Land	3.00375			26	10,128	10,128	63	3.00375
Total General Fund Tax Levies (25 + 26)				27	20,072,053	20,024,911		
Special Revenue Levies								
Emergency (if general fund at levy limit)	0.27000			28		0	64	0.00000
Police & Fire Retirement	Amt Nec			29	2,339,120	2,333,616		0.71802
FICA & IPERS (if general fund at levy limit)	Amt Nec			30		0		0.00000
Other Employee Benefits	Amt Nec			31		0		0.00000
Total Employee Benefit Levies (29,30,31)				32	2,339,120	2,333,616	65	0.71802
Sub Total Special Revenue Levies (28+32)				33	2,339,120	2,333,616		
As Req		**With Gas & Elec Valuation**	**Without Gas & Elec Valuation**					
SSMID 1		0	0	34		0	66	0.00000
SSMID 2		0	0	35		0	67	0.00000
SSMID 3		0	0	36		0	68	0.00000
SSMID 4		0	0	37		0	69	0.00000
SSMID 5		0	0	555		0	565	0.00000
SSMID 6		0	0	556		0	566	0.00000
SSMID 7		0	0	1177		0	1179	0.00000
SSMID 8		0	0	1185		0	1187	0.00000
Total Special Revenue Levies				39	2,339,120	2,333,616		
Debt Service Levy 76.10(6)	Amt Nec			40	10,007,684	9,984,746	70	2.99735
Capital Projects (Capital Improv. Reserve)	0.67500			41		0	71	0.00000
Total Property Taxes (27+39+40+41)				42	32,418,857	32,343,273	72	9.87363

Marie R. Voss 3-09-21
(Signature) (Date) (County Auditor) (Date)

Appendix 4

Ames Area Metropolitan Planning Organization Approval Resolution

PLACE HOLDER FOR MPO RESOLUTION

Iowa Department of Transportation
Clean Air Attainment Funds Application

Added Night Trips
(#11 Cherry - Night)

Submitted to:

IOWA DOT

By:

AMES TRANSIT AGENCY (CYRIDE)
601 N. University Blvd.
Ames, Iowa 50010

October 1, 2021

Form 230017 (05-20)

IOWADOT

PROJECT APPLICATION
IOWA CLEAN AIR ATTAINMENT PROGRAM (ICAAP)

General Information:

Applicant Agency: Ames Transit Agency (Public Agency (required)) E-mail: bneal@cyride.com

Contact Person (*Name and Title*): Barbara Neal, Transit Director

Complete Mailing Address: 601 N. University Blvd.

Ames	IA	50010	515-239-5565
City	State	ZIP Code	Daytime Phone

(Street Address and/or Box Number)

If more than one agency or organization is involved in this project, please state the name, contact person, mailing address, and telephone number of the second agency. *(Attach an additional page if more than two agencies are involved.)*

Co-Applicant Agency: _____ (Public Agency, Non-Profit Organization[1], For-Profit Organization[1], or Individual[1]) E-mail: _____

Contact Person (*Name and Title*): _____

Complete Mailing Address: _____ (Street Address and/or Box Number)

City	State	ZIP Code	Daytime Phone

Project Information:

Project Title[2]: #11 Cherry - Night

Project Description (including length, if applicable):

In August 2018, CyRide redesigned and implemented new bus services traveling in west Ames area including added frequency of trips on the #11 Cherry route that operated day service only. In August 2019, CyRide added night service trips to the #11 Cherry route due to additional demand from residents and to improve safety. ICAAP has funded night service on this route for from October 1, 2020 - September 30, 2022 (FFY2021 & FFY2022). Therefore, this ICAAP request is for these additional night trips for service beginning in October 1. 2022.

*Project priority (1 = highest priority): 1 (a sponsor submitting multiple applications in this funding cycle must assign a numerical rank or priority to each application.)[3]

*Assign the proposed project to one or more of the following categories (check one or more):

- ☐ Transportation-Related Project in the State Implementation Plan (SIP)
- ☐ Transportation Control Measure (TCM)
- ☐ Traffic Flow Improvement (Intersection, Signalization, Other)
- ☐ Planning and Project Development
- ☐ Travel Demand Management (TDM)
- ☑ Transit-Related Improvement
- ☐ Shared-Ride
- ☐ Bicycle or ☐ Pedestrian Facility or Program (select one)
- ☐ Intermodal Freight
- ☐ Passenger
- ☐ Alternative Fuels
- ☐ Vehicle Inspection and Maintenance Program
- ☐ Outreach Activity (Education, Advertising, or Technical Assistance)

*Is the project consistent with the State Implementation Plan for air quality for non-attainment areas? ☐ Yes ☐ No ☑ Not Applicable

*Is the project consistent with the MPO's local congestion management plan? ☐ Yes ☐ No ☑ Not Applicable

*Is the project consistent with the ☑ MPO ☐ RPA ☐ Statewide Long-Range Transportation Plan? ☑ Yes ☐ No ☐ Not Applicable

Notes: [1]Requires public agency as co-sponsor of application.
[2]The term "project" means any ICAAP infrastructure or program proposal.
[3]The Iowa Department of Transportation will use the priority ratings to reflect the sponsor.

Project Costs *(an itemized breakdown must be included on an attached sheet)*:

Total Cost: $39,512.00

Iowa Clean Air Attainment Program Fund Request: $31,609.00

Applicant Match $7,903.00

Projects with a private for-profit co-applicant require a minimum 50 percent applicant match; all other projects require a minimum 20 percent applicant match.

	List All Applicant Match Sources	Amount	Assured or Anticipated (Date Anticipated)
1.	CyRide Operating Budget	$7,903.00	July 01, 2022
2.	Estimated fares (cost above is 'net')	$194.00	October 03, 2022
3.			

Are any state funds involved in this project? ☐ Yes ● No

If Yes, please explain the source and conditions:

Are any other federal funds involved in this project? ☐ Yes ● No

If Yes, please explain the source and conditions:

Estimated Project Development Schedule:

Design: Start Date: _____ Completion Date: _____

Land Acquisition: Start Date: _____ Completion Date: _____

Construction: Start Date: _____ Completion Date: _____

Has any part of this project been started? ● Yes ☐ No

If Yes, please explain:

CyRide began the first year of service in August 2019 with 100% local funding from CyRide. Previous ICAAP requests (Year 1 ICAAP) funded year two of services from 10/1/2020 through 9/30/2021 and (Year 2 ICAAP) funded year three of services from 10/1/2021 through 9/30/2022. If funded, this ICAAP expansion (Year 3 ICAAP) would fund the fourth year of services from October 1, 2022 through September 30, 2023.

How do you plan to measure the success of this project?

Four evaluation methods will be used: 1) Passenger Ridership 2) Customer Comments 3) Passengers per hour and 4) Total Emissions saved

Required Documentation and Narrative Information

The following documents and narratives must be submitted with this application. In the upper right corner of each document or narrative write the corresponding letter shown below.

- ☑ A. A NARRATIVE assessing existing congestions/air quality conditions, outlining the concept of the proposed project, and providing adequate project justification. How will this project reduce congestion, reduce travel or single occupant vehicle usage, and/or improve air quality? Which transportation-related pollutant(s) are being addressed: carbon monoxide, ozone, or particulate matter (PM)?
- ☑ B. A DETAILED MAP identifying the location of the project and clearly differentiating the subject project from any past or future project phases.
- ☑ C. An ITEMIZED BREAKDOWN of the total project costs. This documentation does not need to be a detailed, line-item type of estimate. However, it must accomplish two objectives: First, it must show the method by which the cost estimate was prepared; and second, it must enable a reviewer to determine if the cost estimate is reasonable. The manner in which these objectives are achieved may vary widely depending on the type, scope, and complexity of the project. Absent a fully itemized list of costs, some general guidelines for possible methods of estimating each type of project cost are provided on Attachment A.
- ☑ D. A TIME SCHEDULE for the total project development.
- ☑ E. An OFFICIAL CERTIFICATION from the applicant's governing body (authority) that it shall:
  (1) commit the necessary local matching funding for project implementation and
  (2) upon project completion, be responsible for adequately maintaining and operating the project for public use during the project's useful life.
- ☑ F. An ADOPTED FORMAL RESOLUTION from the appropriate MPO or RPA declaring the sponsor's proposed project or program conforms to the MPO's or RPA's regional transportation planning process. (For MPOs, the project or program must be identified in the fiscally constrained transportation plan and, if applicable, the congestion management plan in TMAs.)
- ☑ G. CALCULATIONS for vehicle emission reductions and total project cost-effectiveness for the targeted pollutants. Project applicant must show through a quantitative analysis how many kilograms of pollutant will be reduced (CO, VOC, NOx, and, if applicable, PM). Project sponsor must calculate the cost-effectiveness of the project by: Dividing the total annualized project cost by the number of kilograms per year of pollutant reduced ($ per kg). Applicant must also show all assumptions and source of data used to calculate the estimates. The applicant must use the most current vehicle emission factors developed by the Iowa DNR and consistent with the U.S. EPA's MOBILE 6.2 air quality model. These emission factors are periodically updated and may be obtained from the Iowa DOT's ICAAP website at: https://iowadot.gov/systems_planning/Grant-Programs/Iowa-Clean-Air-Attainment-Program-ICAAP.
- ☑ H. Completed MINORITY IMPACT STATEMENT attached to application.

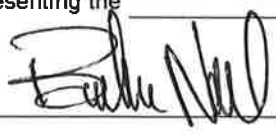
The award of ICAAP funds; any subsequent funding or letting of contracts for design, construction, reconstruction, improvement, or maintenance; and the furnishing of materials for this project shall not involve direct or indirect interest of any state, county, or city official, elective or appointive. All of the above are prohibited by Iowa Code 314.2, 362.5, or 331.342. Any award of funding or any letting of a contract in violation of the foregoing provisions shall invalidate the award of ICAAP funding and authorize a complete recovery of any funds previously disbursed.

Certification

To the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating local authority. I understand the attached **official endorsement(s)** binds the participating local governments to assume responsibility for adequate maintenance of any new or improved facilities.

If ICAAP funding assistance is approved for the project described in this application, I understand that an executed contract between the applicant and the Iowa DOT is required before such funding assistance can be authorized for use in implementing the project.

Representing the Ames Transit Agency
(Name of Applicant's Governing Authority)


Signature

Aug 11, 2021
Date

Barbara Neal, Transit Director
Typed Name and Title
(Governing Authority Official)

August 11, 2021
Date

CyRide
(#11 Cherry - Night)
Added Trips

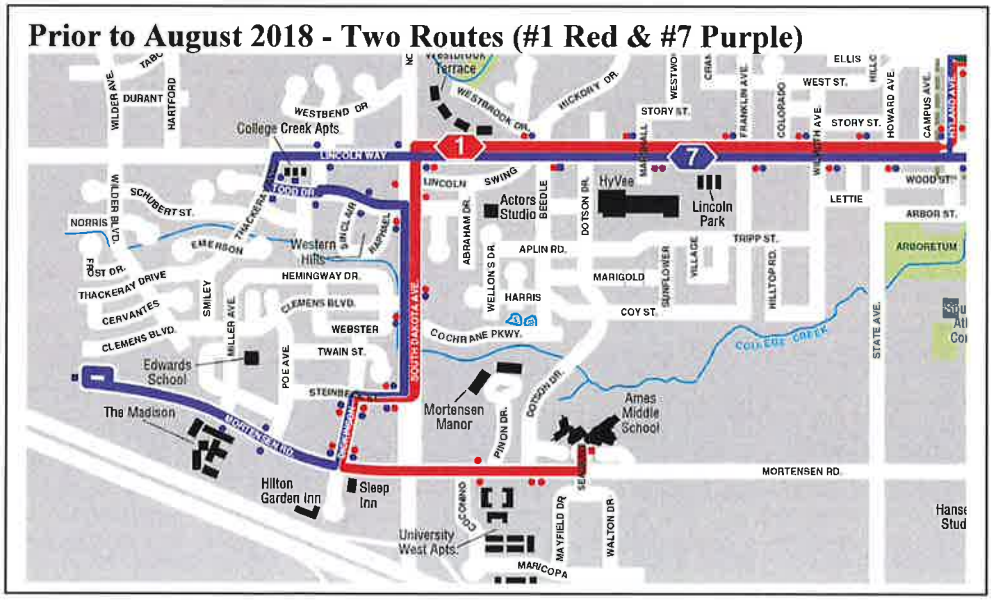
Narrative

Background

Ames Transit Agency (d.b.a CyRide) directly operates fixed route services that are open to the general public within the Ames community including Iowa State University (ISU). The amount of transit service in this small community, of approximately 65,000 is unusually high as a result of the intensive use by university students. To accommodate this high transit demand, CyRide operates 18 hours a day with service frequencies between 4 – 40 minutes. **However in the last six years, ISU enrollment has grown by 22% from 28,682 students to approximately 35,000! During this same timeframe, CyRide's ridership has grown by over 1.6 million passengers.**

High density apartment complexes are rapidly being built off-campus, but where CyRide's routes may provide limited or virtually no transit service. **The result of this growth has been an overwhelming demand for student housing followed by an immediate reactionary demand for additional transit service wherever these apartment complexes are established.** In a community where riding transit is now part of the city's culture, the residents living in these high-density apartment complexes expect frequent and quality transit services to an even greater degree than they did in past years.

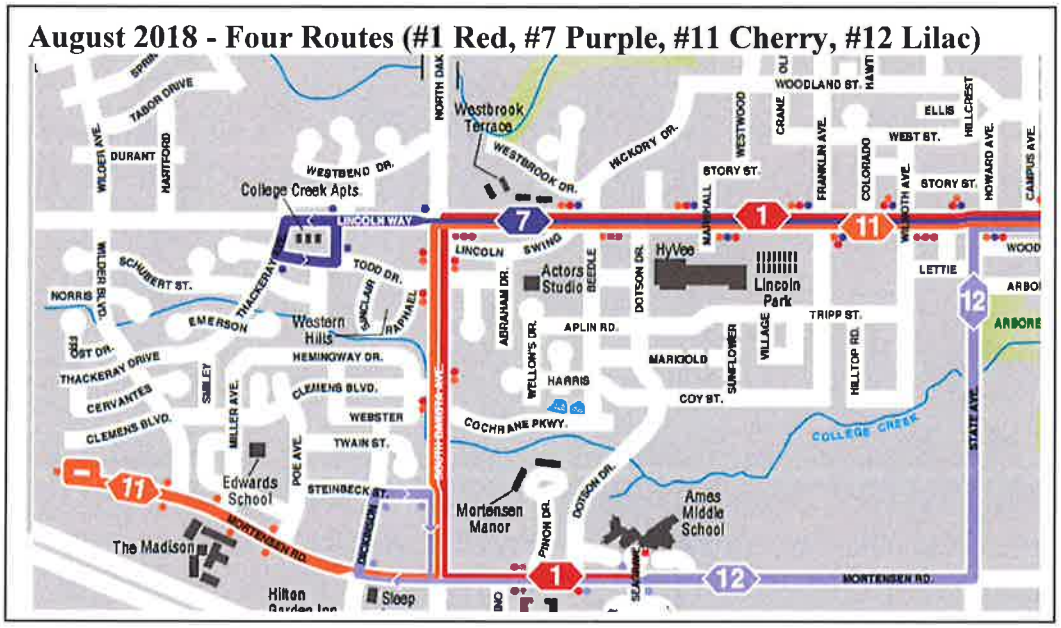
Prior to August 2018, the #1 Red and #7 Purple routes, shown connecting with other routes traveling throughout the community accommodated all transit rides between west Ames and Iowa State University (ISU) campus with over 1.5 million riders annually on just these two routes. **The #1 Red could be best described as the "workhorse of west Ames" providing transit service from 6:30am until 12:30am the following day and accommodated the majority of the west Ames residents.**



The #7 Purple Route provided "minimal service with only six published trips" (3 morning/3 afternoon) during the peak hours and

was utilized mainly to provide additional capacity for Red route riders between west Ames and university campus during the peak hours.

In May 2017, CyRide completed its first ever transit system redesign study (https://www.cyride.com/system-redesign) for their entire transit service and residents located in west Ames demanded additional transit service operating along Mortensen, Steinbeck, Dickenson, S. Dakota and Lincoln Way into campus. CyRide hired an outside consultant to provide expertise in how to operate a transit system originally developed for 4 million riders and adapt it for a system currently carrying over 6 million passengers. **CyRide essentially approved the redesign completed in the study in west Ames by offering 4 different bus routes along these modified corridors thereby breaking up the #1 Red's "workhorse duties" into four different high-frequency service routes (#1 Red, #7 Purple, #11 Cherry & #12 Lilac), which began in August 2018. (see routes below)**



Under the CyRide 2.0 service changes implemented in August 2018, the **#11 Cherry** route initially only offered service from 7:00am through 6:30pm. However due to overwhelming requests by the public, CyRide added night trips to this route that began in August 2019 funded at 100% with CyRide's local budget due to demand for these evening trips. Safety was also a factor in walking along Mortensen Rd. late at night in approving this service. ICAAP funded the second year of service (ICAAP 1st year) from October 1, 2020 – September 30, 2021 as well as the third year of service (ICAAP 2nd year) from October 1, 2021 – September 30, 2022.

Therefore, this third year ICAAP application request is for **#11 Cherry night trips** only for service beginning in October 2022, its fourth year of operation. Again, the first year of this service, CyRide funded with 100% local budget.

Project Description/Justification

Grant Request
Added Trips - #11 Cherry - Night

The third year of ICAAP operational funding request below is for additional evening trips for the **#11 Cherry** route implemented in west Ames for Iowa State University class days only.

This service was initially implemented in August 2019 with 100% CyRide local funds and with ICAAP funding for the second and third years of service in 2020-2022. ICAAP guidelines allow transit agencies to fund three years of services within the first five years of service. The Board's initial approval for this additional service was in January 2019 for the FY2019 budget after the ICAAP's October 2018 grant application deadline. Therefore, this ICAAP request is for evening **#11 Cherry's** fourth year of operation (3rd Year ICAAP) for service beginning October 2022 through September 2023.

The information below describes CyRide's full request for the operating of the **#11 Cherry – Night** service.

#11 Cherry - Night
(ISU School Weekdays) – Year 2

CyRide proposes to provide new evening trips, as highlighted in yellow, to the #11 Cherry route, by operating a bus every 40 minutes during the weekday evenings between 6:20 pm – 10:06 pm from Mortensen Turnaround into Iowa State University (ISU) campus. This route will operate only when Iowa State University holds school-year classes or approximately 160 weekdays out of the year.

CyRide anticipates that this route will generate 350 daily riders on this new evening service given that it serves apartments in high-density areas along Mortensen, Steinbeck and Dickenson.

CyRide anticipates a healthy ridership over ISU class days during the evenings as residents become more and more aware of the new trips and how they serve them. (See Exhibit B – Cherry Route for route alignment details.)

#11 Cherry (Night Service)
ISU Class Days and Finals Days Only
Added Night trips shown below

Mortensen Turnaround	Lincoln Way & Beedle	Union Drive	Lincoln Way & Marshall	Mortensen Turnaround
6:20	6:27	6:33	6:38	6:46
7:00	7:07	7:13	7:18	7:26
7:40	7:47	7:53	7:58	8:06
8:20	8:27	8:33	8:38	8:46
9:00	9:07	9:13	9:18	9:26
9:40	9:47	9:53	9:58	10:06
10:20	10:27	10:33	10:38	10:46

The following information provides operation-specific data for these additional trips:

#11 Cherry Weekday (Night Trips)
Hours of Service: 4.5
Number of Trips: 7
Avg. Passengers/Trip (Year 1): 50
Miles/Trip: 6.6
Miles: 46.2
Days of Operation/Year: 160 (ISU Class & Finals days only)
Ridership: 350 daily rides (50 pass/trip * 7 trips)
This route will serve the following commercial, residential and university destinations as illustrated within Exhibit B:

- **#11 Cherry(Added Frequency):** Mortensen Heights, The Madison, Creative Spirits Ames, Café Milo, Haverkamp Properties Apartments, West Towne Pub, All Iowa Attack Basketball Fieldhouse, Ames-Fitness Center-West, Hilton Garden Inn Ames, Kum & Go, Sleep Inn & Suites, Hilton Garden Inn Ames, West Village Apartments, Perfect Games, Westown Courts, Sukup Basketball Complex, , Israel Family Hospice House, Christopher Gartner Park, Formative Years Growing and Learning, Kum & Go, Ames Woman's Club, Hickory Ridge Apartments, Hy-Vee Gas, Kwik Connection, Wells Fargo Bank, Hy-Vee West, Ames Driver's License Station, McFarland Express Care, McDonalds, Alpha Copies and Print Center, Szechuan House, Central Iowa Vapors, Erbert and Gerberts, Family Video, Uni-Mart, Papa John's, Pammell Grocery & Grill, First National Bank, Apen Ames, Community of Christ, Dunkin Donuts, US Bank ATM, Ames Intermodal Facility, Collegiate United Methodist Church, ISU Campustown Businesses (86 total); http://www.amescampustown.com/, Student Services, Iowa State University west campus.

Added Emissions Factors

The project emissions in Exhibit G are calculated based on the required Iowa DNR's current vehicle emission factors data posted on the Iowa DOT's ICAAP website

Conclusion

The advantages of supporting this grant application can provide numerous benefits to the City of Ames/Iowa State University/Story County through:

- Increased transit service coverage
- Improved transit trips during the evening
- Improved air quality with fewer single-occupant cars and technologically improved bus engines

While students are committed to paying for the improved services required to meet their higher transit demands, unanticipated financial increases in the double-digits would be needed to support these new evening trips. Unanticipated ridership and financial increases occur when

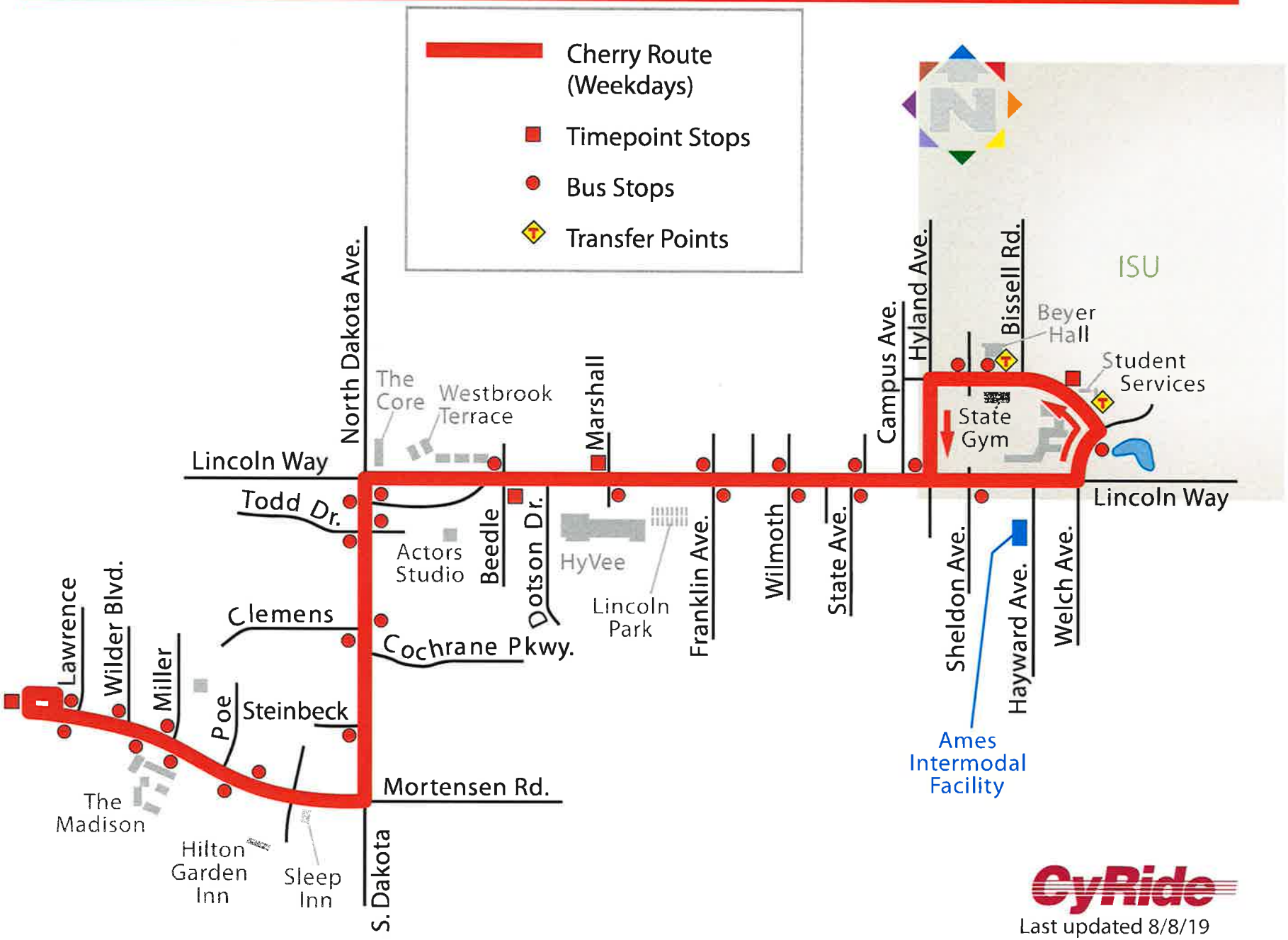
reliable enrollment numbers are not available until only a few weeks after the fall semester begins. ICAAP funding will allow student fees to increase more gradually, so that at the end of the three-year allowance, funding will be sufficient to continue these services into the future.

Without funding for this service enhancement, CyRide would drop passengers along S. Dakota leaving residents with a long walk back to their homes. Additional evening trips were one of the most requested improvements during the initial implementation of service in 2018-2019. The evening service on Cherry should be added to work in tandem with #1 Red night service route to handle evening demand in this west Ames area. CyRide estimates that approximately 56,000 new rides would be generated from these extra trips provided between west Ames and campus throughout a single year.

CyRide encourages the Iowa DOT to provide support for this night route expansion (third year request for ICAAP funding) along these high-density corridors.

Exhibit B - Route Map

CHERRY ROUTE 11 Effective August 19, 2019



CyRide

Last updated 8/8/19

CyRide
Added Trips (#11 Cherry - Night)
Budget

This is the fourth year the service has been in operation, but the third year of requesting ICAAP funding as the initial year 1 was provided with 100% local funding due to timing issues under the application process. Therefore, CyRide is now requesting Year 1 funds as allowed by federal guidance and the Iowa DOT's ICAAP application handbook to spread three years of funding requests over a period of up to 5 years. CyRide is spreading it over 4 years.

Activity	Cost
OPERATING:	
#11 Cherry Weekday Route (NIGHT – ISU School Days Only)	
YEAR 3 – (Request for service beginning October 2022); Service Began 8/2019 (100% funded by CyRide)	
Costs calculated below are the first year costs being requested in the third and final year.	
Driver Wages – 4.5 hrs./day x 160 days x $39.46/hr =	$28,411
Consumables –6.6 miles/trip x 7 trips/day x 160 days x $1.528/mile =	$11,295
SUBTOTAL	$39,706
Less Fares	
0.2 riders/trip x 7 trips x 160 days x **$0.87 average resident fare =	($194)
49.8 riders/trip x 7 trips x 160 days x $0.00 fare (Free ISU ID card) =	($0)
YEAR 3 SUBTOTAL Cherry- Night (less fares) =	**$39,512**
SUBTOTAL OPERATING	**39,512**
TOTAL COST	**$39,512**
ICAAP Share	**$31,609**
CyRide Share (assured)	**$7,903**

NOTES:

** **Average Resident Fare** = Average Cash Deposits/Average Residents Boarding Paying Cash = $4,040/4,738 = $0.87 (See "Comparison of Cash/Deposits and Use of Tickets FY2019 Avg." with calculations highlighted in yellow) CyRide's full fare was increased to $1.25 between January 2012 and May 2018. CyRide then decreased its fares back in May 2018 from $1.25 to $1.00 and its half fares from $.60 to $.50. Additionally, CyRide cannot utilize FY2020 average fares due to no fares collected for portions of FY2020 due to COVID-19 and lower ridership thereafter. In FY2021, students attended university virtually and ridership plummeted. Therefore, the FY2019 average fares are more representative for upcoming services in FY2022.

Please note: CyRide does not bill for indirect costs.

Comparison of Cash/Deposits and Use of Tickets
Since May 2008

Account # 550-1100-345.42-00
Fixed Route Fares

From:	To:	Deposit	Cash Fares	Rides/ Day	Avg. Fare	Cash/ Day	RF Ticket	FF Ticket	RF Percent	FF Percent	RF/ Day	FF/ Day
7/6/18	7/24/2018	$ 3,607.78	5,261	277	$ 0.69	$ 189.88	1801	441	80.3%	19.7%	94.8	23.2
7/25/18	8/7/18	$ 3,029.41	3,956	283	$ 0.77	$ 216.39	1208	328	78.6%	21.4%	86.3	23.4
8/8/18	8/21/18	$ 5,525.75	4,605	329	$ 1.20	$ 394.70	801	367	68.6%	31.4%	57.2	26.2
8/22/18	9/5/18	$ 4,836.26	5,055	337	$ 0.96	$ 322.42	716	391	64.7%	35.3%	47.7	26.1
9/6/18	9/18/18	$ 4,119.32	4,770	367	$ 0.86	$ 316.87	915	322	74.0%	26.0%	70.4	24.8
9/19/18	10/2/18	$ 4,039.31	4,719	337	$ 0.86	$ 288.52	962	310	75.6%	24.4%	68.7	22.1
10/3/18	10/16/18	$ 4,863.76	4,976	355	$ 0.98	$ 347.41	924	288	76.2%	23.8%	66.0	20.6
10/17/18	10/30/18	$ 4,411.83	4,949	354	$ 0.89	$ 315.13	893	256	77.7%	22.3%	63.8	18.3
10/31/18	11/14/18	$ 3,411.21	5,170	345	$ 0.66	$ 227.41	822	284	74.3%	25.7%	54.8	18.9
11/15/18	11/27/18	$ 3,396.23	3,318	255	$ 1.02	$ 261.25	478	162	74.7%	25.3%	36.8	12.5
11/28/18	12/11/18	$ 4,196.11	4,531	324	$ 0.93	$ 299.72	852	287	74.8%	25.2%	60.9	20.5
12/12/18	1/8/19	$ 5,168.96	7,008	250	$ 0.74	$ 184.61	1054	336	75.8%	24.2%	37.6	12.0
1/9/19	1/22/19	$ 4,119.89	4,218	301	$ 0.98	$ 294.28	590	284	67.5%	32.5%	42.1	20.3
1/23/19	2/5/19	$ 3,898.84	3,925	280	$ 0.99	$ 278.49	509	314	61.8%	38.2%	36.4	22.4
2/6/19	2/19/19	$ 4,240.94	4,737	338	$ 0.90	$ 302.92	687	371	64.9%	35.1%	49.1	26.5
2/20/19	3/5/19	$ 4,382.58	4,793	342	$ 0.91	$ 313.04	624	376	62.4%	37.6%	44.6	26.9
3/6/19	3/19/19	$ 4,211.23	4,579	327	$ 0.92	$ 300.80	647	203	76.1%	23.9%	46.2	14.5
3/20/19	4/2/19	$ 3,438.35	4,948	353	$ 0.69	$ 245.60	1010	272	78.8%	21.2%	72.1	19.4
4/3/19	4/16/19	$ 4,332.65	5,103	365	$ 0.85	$ 309.48	767	228	77.1%	22.9%	54.8	16.3
4/17/19	4/30/19	$ 3,771.30	4,379	313	$ 0.86	$ 269.38	779	241	76.4%	23.6%	55.6	17.2
5/1/19	5/14/19	$ 3,583.64	4,941	353	$ 0.73	$ 255.97	766	239	76.2%	23.8%	54.7	17.1
5/15/19	6/4/19	$ 3,867.25	6,354	303	$ 0.61	$ 184.15	949	328	74.3%	25.7%	45.2	15.6
6/5/19	6/20/19	$ 3,119.40	5,404	338	$ 0.58	$ 194.96	1134	279	80.3%	19.7%	70.9	17.4
6/21/19	7/2/19	$ 5,110.24	3,496	291	$ 1.46	$ 425.85	992	249	79.9%	20.1%	82.7	20.8
7/3/19	7/17/19	$ 3,576.47	4,090	273	$ 0.87	$ 238.43	872	244	78.1%	21.9%	58.1	16.3
7/18/19	7/30/19	$ 2,791.00	3,894	300	$ 0.72	$ 214.69	1125	188	85.7%	14.3%	86.5	14.5
7/31/19	8/13/19	$ 2,040.47	4,163	297	$ 0.49	$ 145.75	870	257	77.2%	22.8%	62.1	18.4
8/14/19	8/27/19	$ 4,652.20	4,760	340	$ 0.98	$ 332.30	679	275	71.2%	28.8%	48.5	19.6
8/28/19	9/10/19	$ 5,319.18	5,363	383	$ 0.99	$ 379.94	640	209	75.4%	24.6%	45.7	14.9
9/11/19	9/17/19	$ 4,107.34	4,762	680	$ 0.86	$ 586.76	404	160	71.6%	28.4%	57.7	22.9
9/18/19	10/1/19	$ 5,215.40	5,640	403	$ 0.92	$ 372.53	640	310	67.4%	32.6%	45.7	22.1
10/2/19	10/15/19	$ 5,139.23	5,785	413	$ 0.89	$ 367.09	661	276	70.5%	29.5%	47.2	19.7
10/16/19	10/29/19	$ 5,562.53	5,847	418	$ 0.95	$ 397.32	785	225	77.7%	22.3%	56.1	16.1
10/30/19	11/12/19	$ 4,376.60	4,891	349	$ 0.89	$ 312.61	754	253	74.9%	25.1%	53.9	18.1
11/13/19	11/19/19	$ 2,970.30	2,984	426	$ 1.00	$ 424.33	350	130	72.9%	27.1%	50.0	18.6
11/20/19	12/3/19	$ 2,685.42	4,372	312	$ 0.61	$ 191.82	631	225	73.7%	26.3%	45.1	16.1
12/4/19	12/11/19	$ 128.00	2,878	360	$ 0.04	$ 16.00	379	127	74.9%	25.1%	47.4	15.9
12/12/19	12/17/19	$ 4,531.28	1,830	305	$ 2.48	$ 755.21	236	74	76.1%	23.9%	39.3	12.3
12/18/19	1/9/20	$ 3,464.36	6,045	263	$ 0.57	$ 150.62	980	271	78.3%	21.7%	42.6	11.8
1/10/20	1/22/20	$ 3,971.63	3,990	307	$ 1.00	$ 305.51	529	246	68.3%	31.7%	40.7	18.9
1/23/20	2/5/20	$ 5,562.19	4,905	350	$ 1.13	$ 397.30	776	294	72.5%	27.5%	55.4	21.0
2/6/20	2/20/20	$ 3,243.77	4,876	325	$ 0.67	$ 216.25	857	311	73.4%	26.6%	57.1	20.7
2/21/20	3/4/20	$ 3,823.46	4,324	333	$ 0.88	$ 294.11	709	277	71.9%	28.1%	54.5	21.3
3/5/20	3/19/20	$ 2,616.37	3,636	242	$ 0.72	$ 174.42	539	202	72.7%	27.3%	35.9	13.5
3/20/20	8/13/20	$ 3,962.90	5,302	36	$ 0.75	$ 26.96	632	224	73.8%	26.2%	4.3	1.5
Avg. before 1/2012		$ 3,763	4,398	486	$ 0.86	$ 399.60	508	245	67.5%	32.5%	54	27
Avg. after 1/2012		$ 4,557	4,557	319	$ 1.00	$ 323.23	913	465	66.3%	33.7%	63	32
Average FY2014		$ 5,176	4857	343	$ 1.06	$ 365.50	825	557	59.5%	40.5%	59	39
Average FY2015		$ 4,501	4402	305	$ 1.03	$ 315.22	973	541	63.5%	36.5%	68	38
Average FY2016		$ 4,089	3877	282	$ 1.06	$ 300.73	931	501	64.8%	35.2%	67	36
Average FY2017		$ 4,464	4317	283	$ 1.05	$ 296.32	1085	564	63.6%	36.4%	70	37
Average FY2018		$ 3,914	3796	270	$ 1.04	$ 283.48	997	454	67.8%	32.2%	68	32
Average FY2019		$ 4,040	4738	319	$ 0.87	$ 276.63	880	292	74.4%	25.6%	59	20
Average FY2020		$ 3,862	4545	344	$ 0.89	$ 307.73	634	229	73.4%	26.6%	47	17

Added Trips
(#11 Cherry - Night)
Schedule

Activity	Completion Date
Service Begins (3rd year ICAAP*)	October 1, 2022
Service Ends (3rd year ICAAP*)	September 30, 2023

* This is a Year 3 request for ICAAP funding for Cherry weeknight service. If approved for Year 3 ICAAP funding, CyRide anticipates continuing this service when funding ends through its budget process.

CyRide
Added Trips (#11 Cherry - Night)
Official Certification

The Ames Transit Agency (CyRide) Board of Trustees certifies that it shall:

(1) commit the necessary local matching funding for project implementation and

(2) upon project completion, be responsible for adequately maintaining and operating the project for public use during the project's useful life.

Liz Jeffery, Ames Transit Agency President

8/11/2021
Date

CyRide
Added Trips (#11 Cherry - Night)
MPO Resolution DRAFT

The Ames Area Metropolitan Planning Organization (AAMPO) approved and endorsed this project on September 28, 2021 with a resolution approving this grant. The resolution is attached.

The ICAAP application form (Form 230017; page 3 of 6) requires that the project must be identified in the fiscally constrained transportation plan (TIP). However, the ICAAP handbook has been revised to state that "Awarded projects" must be added to approved MPO TIP's and STIP's (See below).

> ***https://iowadot.gov/systems_planning/pdf/ICAAP_Application_Handbook.pdf (page 5):***
> ***Awarded projects*** *must be added to approved MPO or RPA transportation improvement programs (TIPs) and Iowa's Statewide Transportation Improvement Program (STIP).*

Therefore, when this ICAAP project has been formally approved by the Iowa DOT Commission (early January 2022), the funding will be amended and approved by the MPO in the AAMPO's FY2022 Transportation Improvement Program in order to begin transferring the federal funding from FHWA to FTA and gain formal grant approval from the Federal Transit Administration.

Added Trips (#11 Cherry - Night)
Emissions Calculation

Calculation/Assumption	Factors	CO	VOC (HC)	NOx
Net Project Cost	**$39,512**			
Cherry Night Net Operating Cost	$39,512			
Operating for One Year - $39,512				
Number of Years In Project - Operating	1			
#11 Cherry Route Service Assumptions				
Number of days/Yr. in Project (ISU Classdays & Finals Days)	160			
Avg. Rd-Trip Commute (Miles*)	6.6			
# Daily Trips	7			
# Riders/Trip	50			
Number of Daily Miles	46.2			
Total Estimated Avg. Daily Ridership	350			
Total Cars Taken From Roadway Weekdays (1.2/car)	292			
Emission Reduction By Riders Taking LILAC				
Emission Factor (30 mph) - LDGV		13.84	2.063	1.032
Emission Factor x Avg. Commute Length*		91.34	13.6158	6.8112
#11 Cherry: Gross Red. x 160 days x Cars From Roadway x 1 year		4,262,720	635,404	317,856
Total LDGV Emissions Reduced		4,262,720	635,404	317,856
Emission Increase For Standard Buses:				
Emission Factor (10 mph) - HDDV		5.544	0.915	10.176
(40' Bus) HDDV Emissions x 46.2 miles/day x 160 days x 1 year		40,981	6,764	75,221
TOTAL (40' Bus) HDDV Emissions		40,981	6,764	75,221
Net Reduction for Cherry Night:		**4,221,739**	**628,640**	**242,635**
Cost Effectiveness for Cherry Night		**$ 9.36**	**$ 62.85**	**$ 162.85**
Net Reduction for Project :		**4,221,739**	**628,640**	**242,635**
Total Reduction for Project - kg/project		**4,221.7**	**628.6**	**242.6**
Net Reduction Per Year:		**4,221,739**	**628,640**	**242,635**
Total Reduction Per Year - kg/year		**4,221.7**	**628.6**	**242.6**
Cost Effectivness:				
Total Project Cost		**$39,512**		
One Yr. Project Total Cost= ($39,512/1)		**$39,512**		
CO		**$9.36**		
VOC		**$62.85**		
NOx		**$162.85**		

* Based on statistics, riders are riding the entire Cherry routes to reach their destination

IOWADOT
Form 105101 (3-18)

Minority Impact Statement

Pursuant to 2008 Iowa Acts, HF 2393, Iowa Code 8.11, all grant applications submitted to the State of Iowa that are due beginning Jan. 1, 2009, shall include a Minority Impact Statement. This is the state's mechanism for requiring grant applications to consider the potential impact of the grant project's proposed programs or policies on minority groups.

Please choose the statement(s) that pertains to this grant application. Complete all the information requested for the chosen statement(s). Submit additional pages as necessary.

☑ The proposed grant project programs or policies could have a disproportionate or unique **positive** impact on minority persons.

Describe the positive impact expected from this project.

The City of Ames has an 10.24% Asian population and any new route expansion on high capacity corridors will certainly have a positive impact on this minority and limited-English proficient group living within the Ames community. Specifically, the routes in west Ames travels along the Mortensen, Steinbeck and Dickensen corridors in west Ames which have developed into a high capacity corridors where a majority of university students reside in high residential apartment complexes. The residents living in these apartments along these corridors will be provided transportation directly to central ISU campus. While this service is designed to serve the general public, Ames residents of all races and genders living within the community will benefit from this grant application and service.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☑ Asians

☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other_____

☐ The proposed grant project programs or policies could have a disproportionate or unique **negative** impact on minority persons.

Describe the negative impact expected from this project.

Present the rationale for the existence of the proposed program or policy.

Provide evidence of consultation with representatives of the minority groups impacted.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☐ Asians
☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other _____

☐ The proposed grant project programs or policies are **not expected to have** a disproportionate or unique impact on minority persons.

Present the rationale for determining no impact.

I hereby certify that the information on this form is complete and accurate, to the best of my knowledge.

Name Barbara Neal

Title Transit Director

Definitions

"Minority Persons," as defined in Iowa Code 8.11, means individuals who are women, persons with a disability, Blacks, Latinos, Asians or Pacific Islanders, American Indians, and Alaskan Native Americans.

"Disability," as defined in Iowa Code 15.102, subsection 7, paragraph "b," subparagraph (1):
b. As used in this subsection:
(1) *"Disability"* means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of the individual, a record of physical or mental impairment that substantially limits one or more of the major life activities of the individual, or being regarded as an individual with a physical or mental impairment that substantially limits one or more of the major life activities of the individual.

"Disability" does not include any of the following:
(a) Homosexuality or bisexuality.
(b) Transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments or other sexual behavior disorders.
(c) Compulsive gambling, kleptomania, or pyromania.
(d) Psychoactive substance abuse disorders resulting from current illegal use of drugs.

"State Agency," as defined in Iowa Code 8.11, means a department, board, bureau, commission, or other agency or authority of the State of Iowa.

Iowa Department of Transportation
Clean Air Attainment Funds Application

Added Midday Trips
#12 Lilac - Midday

Submitted to:

IOWA DOT

By:

AMES TRANSIT AGENCY (CYRIDE)
601 N. University Blvd.
Ames, Iowa 50010

October 1, 2021

Form 230017 (05-20)

IOWA DOT

PROJECT APPLICATION
IOWA CLEAN AIR ATTAINMENT PROGRAM (ICAAP)

General Information:

Applicant Agency: Ames Transit Agency (Public Agency (required)) E-mail: bneal@cyride.com

Contact Person (*Name and Title*): Barbara Neal, Transit Director

Complete Mailing Address: 601 N. University Blvd. (Street Address and/or Box Number)

Ames	IA	50010	515-239-5565
City	State	ZIP Code	Daytime Phone

If more than one agency or organization is involved in this project, please state the name, contact person, mailing address, and telephone number of the second agency. *(Attach an additional page if more than two agencies are involved.)*

Co-Applicant Agency: _____ (Public Agency, Non-Profit Organization[1], For-Profit Organization[1], or Individual[1]) E-mail: _____

Contact Person (*Name and Title*): _____

Complete Mailing Address: _____ (Street Address and/or Box Number)

City	State	ZIP Code	Daytime Phone

Project Information:

Project Title[2]: #12 Lilac - Mid-day

Project Description (including length, if applicable):

In August 2018, CyRide redesigned and implemented new bus services traveling in west Ames area including a new #12 Lilac route that operated peak hour service only. In August 2019, CyRide added midday trips to the #12 Lilac route due to additional demand from residents. ICAAP funding supported the second and third years of services from October 2020 - September 2022. Therefore, this ICAAP request (year 3 request) is for the #12 Lilac mid-day service to support operations beginning in October 2022 through September 2023.

*Project priority (1 = highest priority): 2 (a sponsor submitting multiple applications in this funding cycle must assign a numerical rank or priority to each application.)[3]

*Assign the proposed project to one or more of the following categories (check one or more):

- ☐ Transportation-Related Project in the State Implementation Plan (SIP)
- ☐ Transportation Control Measure (TCM)
- ☐ Traffic Flow Improvement (Intersection, Signalization, Other)
- ☐ Planning and Project Development
- ☐ Travel Demand Management (TDM)
- ☑ Transit-Related Improvement
- ☐ Shared-Ride
- ☐ Bicycle or ☐ Pedestrian Facility or Program (select one)
- ☐ Intermodal Freight
- ☐ Passenger
- ☐ Alternative Fuels
- ☐ Vehicle Inspection and Maintenance Program
- ☐ Outreach Activity (Education, Advertising, or Technical Assistance)

*Is the project consistent with the State Implementation Plan for air quality for non-attainment areas? ☐ Yes ☐ No ☑ Not Applicable

*Is the project consistent with the MPO's local congestion management plan? ☐ Yes ☐ No ☑ Not Applicable

*Is the project consistent with the ☑ MPO ☐ RPA ☐ Statewide Long-Range Transportation Plan? ☑ Yes ☐ No ☐ Not Applicable

Notes: [1]Requires public agency as co-sponsor of application.

[2]The term "project" means any ICAAP infrastructure or program proposal.

[3]The Iowa Department of Transportation will use the priority ratings to reflect the sponsor.

Project Costs *(an itemized breakdown must be included on an attached sheet)*:

Total Cost: $37,287.00

Iowa Clean Air Attainment Program Fund Request: $29,830.00

Applicant Match $7,457.00

Projects with a private for-profit co-applicant require a minimum 50 percent applicant match; all other projects require a minimum 20 percent applicant match.

	List All Applicant Match Sources	Amount	Assured or Anticipated (Date Anticipated)
1.	CyRide Operating Budget	$7,457.00	July 01, 2022
2.	Estimated fares (cost above is 'net')	$194.00	October 03, 2022
3.			

Are any state funds involved in this project? ☐ Yes ● No

If Yes, please explain the source and conditions:

Are any other federal funds involved in this project? ☐ Yes ● No

If Yes, please explain the source and conditions:

Estimated Project Development Schedule:

Design: Start Date: _____ Completion Date: _____

Land Acquisition: Start Date: _____ Completion Date: _____

Construction: Start Date: _____ Completion Date: _____

Has any part of this project been started? ● Yes ☐ No

If Yes, please explain:

CyRide began the first year of service in August 2019 with 100% local funding from CyRide. Previous ICAAP requests (Year 1 ICAAP) funded year two of services from 10/1/2020 through 9/30/2021 and (Year 2 ICAAP) funded year three of services from 10/1/2021 through 9/30/2022. If funded, this ICAAP expansion (Year 3 ICAAP) would fund the fourth year of services from October 1, 2022 through September 30, 2023.

How do you plan to measure the success of this project?

Four evaluation methods will be used: 1) Passenger Ridership 2) Customer Comments 3) Passengers per hour and 4) Total Emissions saved

Required Documentation and Narrative Information

The following documents and narratives must be submitted with this application. In the upper right corner of each document or narrative write the corresponding letter shown below.

☑ A. A NARRATIVE assessing existing congestions/air quality conditions, outlining the concept of the proposed project, and providing adequate project justification. How will this project reduce congestion, reduce travel or single occupant vehicle usage, and/or improve air quality? Which transportation-related pollutant(s) are being addressed: carbon monoxide, ozone, or particulate matter (PM)?

☑ B. A DETAILED MAP identifying the location of the project and clearly differentiating the subject project from any past or future project phases.

☑ C. An ITEMIZED BREAKDOWN of the total project costs. This documentation does not need to be a detailed, line-item type of estimate. However, it must accomplish two objectives: First, it must show the method by which the cost estimate was prepared; and second, it must enable a reviewer to determine if the cost estimate is reasonable. The manner in which these objectives are achieved may vary widely depending on the type, scope, and complexity of the project. Absent a fully itemized list of costs, some general guidelines for possible methods of estimating each type of project cost are provided on Attachment A.

☑ D. A TIME SCHEDULE for the total project development.

☑ E. An OFFICIAL CERTIFICATION from the applicant's governing body (authority) that it shall:
(1) commit the necessary local matching funding for project implementation and
(2) upon project completion, be responsible for adequately maintaining and operating the project for public use during the project's useful life.

☑ F. An ADOPTED FORMAL RESOLUTION from the appropriate MPO or RPA declaring the sponsor's proposed project or program conforms to the MPO's or RPA's regional transportation planning process. (For MPOs, the project or program must be identified in the fiscally constrained transportation plan and, if applicable, the congestion management plan in TMAs.)

☑ G. CALCULATIONS for vehicle emission reductions and total project cost-effectiveness for the targeted pollutants. Project applicant must show through a quantitative analysis how many kilograms of pollutant will be reduced (CO, VOC, NOx, and, if applicable, PM). Project sponsor must calculate the cost-effectiveness of the project by: Dividing the total annualized project cost by the number of kilograms per year of pollutant reduced ($ per kg). Applicant must also show all assumptions and source of data used to calculate the estimates. The applicant must use the most current vehicle emission factors developed by the Iowa DNR and consistent with the U.S. EPA's MOBILE 6.2 air quality model. These emission factors are periodically updated and may be obtained from the Iowa DOT's ICAAP website at: https://iowadot.gov/systems_planning/Grant-Programs/Iowa-Clean-Air-Attainment-Program-ICAAP.

☑ H. Completed MINORITY IMPACT STATEMENT attached to application.

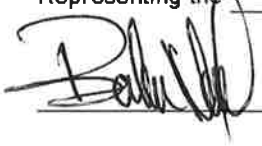
The award of ICAAP funds; any subsequent funding or letting of contracts for design, construction, reconstruction, improvement, or maintenance; and the furnishing of materials for this project shall not involve direct or indirect interest of any state, county, or city official, elective or appointive. All of the above are prohibited by Iowa Code 314.2, 362.5, or 331.342. Any award of funding or any letting of a contract in violation of the foregoing provisions shall invalidate the award of ICAAP funding and authorize a complete recovery of any funds previously disbursed.

Certification

To the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating local authority. I understand the attached **official endorsement(s)** binds the participating local governments to assume responsibility for adequate maintenance of any new or improved facilities.

If ICAAP funding assistance is approved for the project described in this application, I understand that an executed contract between the applicant and the Iowa DOT is required before such funding assistance can be authorized for use in implementing the project.

Representing the Ames Transit Agency
(Name of Applicant's Governing Authority)


Signature

August 11, 2021
Date

Barbara Neal, Transit Director
Typed Name and Title
(Governing Authority Official)

August 11, 2021
Date

CyRide
#12 Lilac- Midday
Added Trips

Narrative

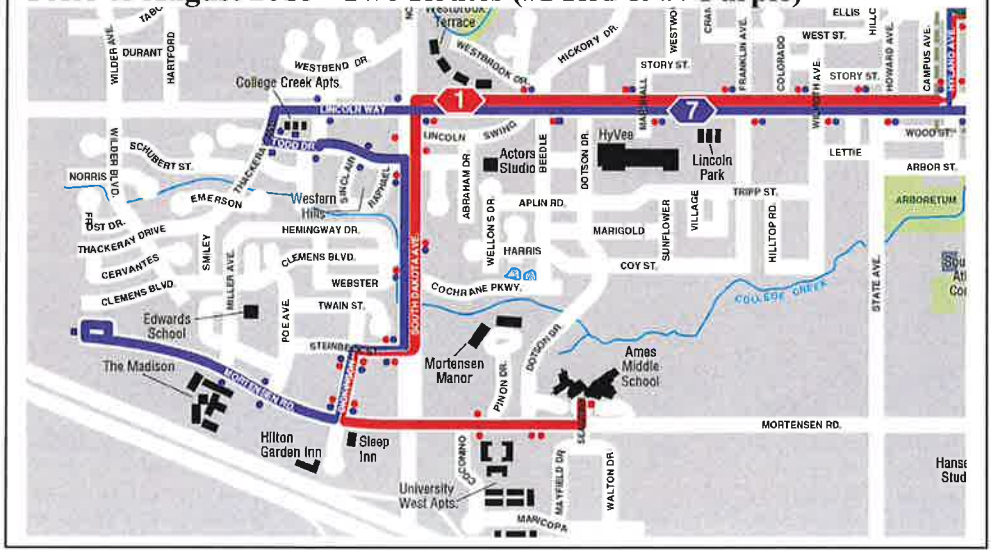
Background

Ames Transit Agency (d.b.a CyRide) directly operates fixed route services that are open to the general public within the Ames community including Iowa State University (ISU). The amount of transit service in this small community, of approximately 65,000 is unusually high as a result of the intensive use by university students. To accommodate this high transit demand, CyRide operates 18 hours a day with service frequencies between 4 – 40 minutes. **However in the last six years, ISU enrollment has grown by 22% from 28,682 students to approximately 35,000! During this same timeframe, CyRide's ridership has grown by over 1.6 million passengers.**

High density apartment complexes are rapidly being built off-campus, but where CyRide's routes may provide limited or virtually no transit service. **The result of this growth has been an overwhelming demand for student housing followed by an immediate reactionary demand for additional transit service wherever these apartment complexes are established.** In a community where riding transit is now part of the city's culture, the residents living in these high-density apartment complexes expect frequent and quality transit services to an even greater degree than they did in past years.

Prior to August 2018, the #1 Red and #7 Purple routes, shown connecting with other routes traveling throughout the community accommodated all transit rides between west Ames and Iowa State University (ISU) campus with over 1.5 million riders annually on just these two routes. **The #1 Red could be best described as the "workhorse of west Ames" providing transit service from 6:30am until 12:30am the following day and accommodated the majority of the west Ames residents.**

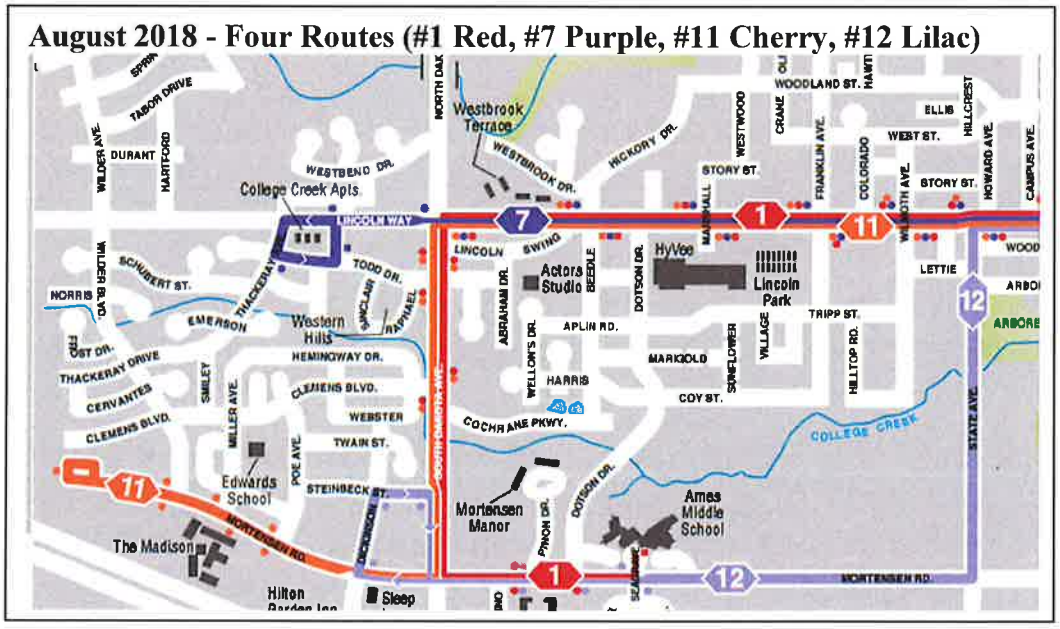
Prior to August 2018 - Two Routes (#1 Red & #7 Purple)



The #7 Purple Route provided "minimal service with only six published trips" (3 morning/3 afternoon) during the peak hours and

was utilized mainly to provide additional capacity for Red route riders between west Ames and university campus during the peak hours.

In May 2017, CyRide completed its first ever transit system redesign study (https://www.cyride.com/system-redesign) for their entire transit service and residents located in west Ames demanded additional transit service operating along Mortensen, Steinbeck, Dickenson, S. Dakota and Lincoln Way into campus. CyRide hired an outside consultant to provide expertise in how to operate a transit system originally developed for 4 million riders and adapt it for a system currently carrying over 6 million passengers. **CyRide essentially approved the redesign completed in the study in west Ames by offering 4 different bus routes along these modified corridors thereby breaking up the #1 Red's "workhorse duties" into four different high-frequency service routes (#1 Red, #7 Purple, #11 Cherry & #12 Lilac), which began in August 2018. (see routes below)**



Under the CyRide 2.0 service changes implemented in August 2018, the #12 Lilac route initially only offered peak hour service between the hours of 7:05am – 10:13am AND afternoon service from 2:35pm – 5:23pm. CyRide subsequently requested and received ICAAP funding to receive funding for the reimbursement for Lilac – peak hour reimbursement. CyRide received three full years of ICAAP funding for this peak-hour service within previous applications. CyRide added mid-day trips to the #12 Lilac route that began in August 2019 funded at 100% with CyRide's local budget due to demand for these trips and overcrowding on #11 Cherry. In addition, CyRide has received ICAAP funding (Year #1 & #2) for the #12 Lilac mid-day service (October 1, 2020 – September 30, 2022).

Therefore, this ICAAP application request is for new #12 Lilac mid-day trips for service beginning in October 1, 2022 – September 30, 2023.

Project Description/Justification

Grant Request
Added Trips - #12 Lilac- Midday

The funding request below is for additional midday trips for the #12 Lilac route implemented in west Ames during Iowa State University class days. These services were initially implemented in August 2019 with 100% CyRide local funds and then a second and third years with ICAAP funding for federal fiscal years 2021 & 2022. ICAAP guidelines allow transit agencies to fund three years of services within the first five years of service. The Board's initial approval for this additional service was in January 2019 for the FY2019 budget after the ICAAP's October 2018 grant application deadline.

This ICAAP request is for midday Lilac's fourth year of operation (3rd Year ICAAP) for service beginning October 2022 through September 2023.

The information below describes CyRide's full request for the operating of the #12 Lilac – Midday service.

#12 Lilac – Midday
(ISU School Weekdays) – Year 1

CyRide proposes to provide new mid-day trips, as highlighted in yellow, to the #12 Lilac route, by operating a bus every 40 minutes during the weekday between 10:05am – 2:33pm from Steinbeck-Dickenson-Mortensen into Iowa State University (ISU) campus. This route will operate only when Iowa State University holds school-year classes or approximately 160 weekdays out of the year.

CyRide anticipates that this route will generate 350 daily riders on this new service given that it serves apartments in high-density areas along Mortensen, Steinbeck and Dickenson.

CyRide anticipates a healthy ridership over ISU class days as residents become more and more aware of the new route and how it serves them. (See Exhibit B – Lilac Route for route alignment details.)

#12 Lilac (Weekday Service)
ISU Class Days and Finals Days Only
Added Mid-day Trips

Mortensen / Dickinson	Student Services	Mortensen / Dickinson
7:05	7:15	7:30
7:25	7:35	7:50
7:45	7:55	8:10
8:05	8:15	8:30
8:25	8:35	8:50
8:45	8:55	9:10
9:05	9:15	9:30
9:25	9:35	9:50
9:45	9:55	10:10
10:05		
10:45	10:15	10:30
11:25	10:55	11:10
12:05	11:35	11:50
12:45	12:15	12:30
1:25	12:55	1:10
2:05	1:35	1:50
	2:15	2:30
2:35	2:45	3:00
2:55	3:05	3:20
3:15	3:25	3:40
3:35	3:45	4:00
3:55	4:05	4:20
4:15	4:25	4:40
4:35	4:45	5:00
4:55	5:05	5:20
5:15	5:25	5:40

The following information provides operation-specific data for these added trips to this route:

#12 Lilac Weekday (Peak Only)
Hours of Service: 4.5
Number of New Trips: 7
Avg. Passengers/Trip (Year 1): 50
Miles/Trip: 5.3
Miles: 37.1
Days of Operation/Year: 160 (ISU Class & Finals days only)
Ridership: 350 daily rides (50 pass/trip* 7 trips)

This route will serve the following commercial, residential and University destinations as illustrated within Exhibit B:

- **#12 Lilac (New Route):** West Towne Pub, All Iowa Attack Basketball Fieldhouse, Ames-Fitness Center-West, Hilton Garden Inn Ames, Kum & Go, Sleep Inn & Suites, Hilton Garden Inn Ames, The Rose of Ames, The Waterford at Ames, West Village Apartments, Perfect Games, Westown Courts, Sukup Basketball Complex, University West Apartments, Ames Middle School, Southwest Athletic Complex, Dunkin Donuts, US Bank ATM, Ames Intermodal Facility, Collegiate United Methodist Church, ISU Campustown Businesses (86 total); http://www.amescampustown.com/, Student Services, Iowa State University west campus.

Added Emissions Factors

The project emissions in Exhibit G are calculated based on the required Iowa DNR's current vehicle emission factors data posted on the Iowa DOT's ICAAP website

Conclusion

The advantages of supporting this grant application can provide numerous benefits to the City of Ames/Iowa State University/Story County through:

- Increased transit service coverage
- Improved transit trips during the midday
- Improved air quality with fewer single-occupant cars and technologically improved bus engines

While students are committed to paying for the improved services required to meet their higher transit demands, unanticipated financial increases in the double-digits would be needed to support these new midday trips. Unanticipated ridership and financial increases occur when reliable enrollment numbers are not available until only a few weeks after the fall semester begins. ICAAP funding will allow student fees to increase more gradually, so that at the end of the three-year allowance, funding will be sufficient to continue these services into the future.

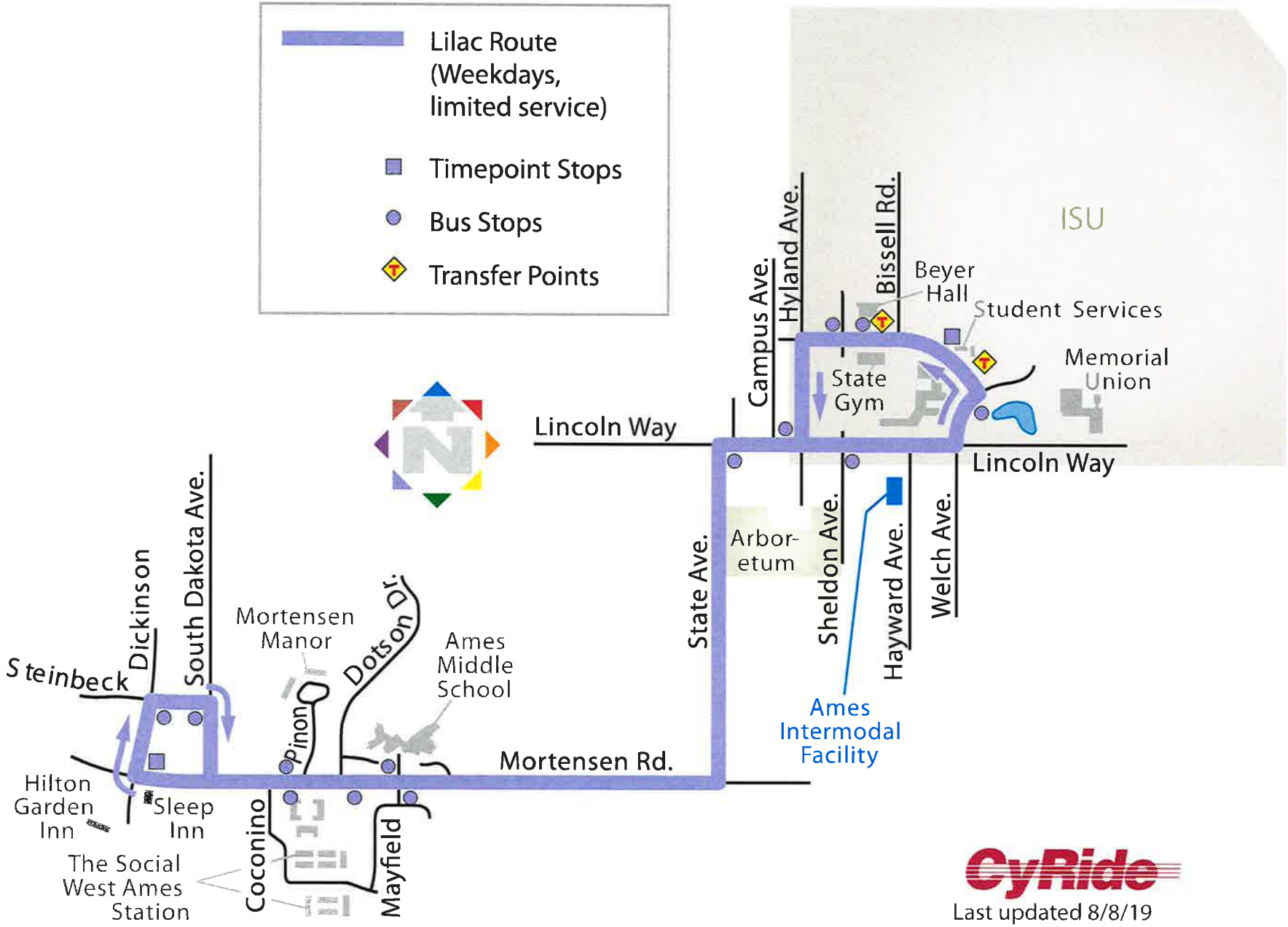
Without funding for this service enhancement, CyRide may need to leave passengers at the bus stops as capacity on the buses is already at its maximum along these corridors. Additional mid-

day trips were one of the most requested improvements during the initial implementation of service in 2018-2019. The mid-day service on Lilac should be added to work in tandem with #1 Red and #11 Cherry routes to handle mid-day demand in this area. CyRide estimates that approximately 56,000 new rides would be generated from these extra trips provided between west Ames and campus throughout a single year.

CyRide encourages the Iowa DOT to provide support for this mid-day route expansion (third year request for ICAAP funding) along these high-density corridors.

Exhibit B - Route Map

LILAC ROUTE 12 Effective August 26, 2019



CyRide

Last updated 8/8/19

CyRide
Added Trips (#12 Lilac - Midday)
Budget

This is the fourth year the service has been in operation, but the third year of requesting ICAAP funding as the initial year 1 was provided with 100% local funding due to timing issues under the application process. Therefore, CyRide is now requesting Year 1 funds as allowed by federal guidance and the Iowa DOT's ICAAP application handbook to spread three years of funding requests over a period of up to 5 years. CyRide is spreading it over 4 years.

Activity		Cost
OPERATING:		
#12 Lilac Weekday Route (MID-DAY – ISU School Days Only)		
YEAR 3 – (Request for service beginning October 2022);		
Service Began 10/1/2019-9/30/2020 (100% funded by CyRide)		
Costs calculated below are the first year costs being requested in the third and final year.		
Driver Wages – 4.5 hrs./day x 160 days x $39.46/hr =	$28,411	
Consumables –5.3 miles/trip x 7 trips/day x 160 days x $1.528/mile =	$9,070	
SUBTOTAL	$37,481	
Less Fares		
0.2 riders/trip x 7 trips x 160 days x **$0.87 average resident fare =	($194)	
49.8 riders/trip x 7 trips x 160 days x $0.00 fare (Free ISU ID card) =	($0)	
YEAR 3 SUBTOTAL LILAC- Midday (less fares) =		**$37,287**
SUBTOTAL OPERATING		**37,287**
TOTAL COST		**$37,287**
ICAAP Share		**$29,830**
CyRide Share (assured)		**$7,457**

NOTES:

** **Average Resident Fare** = Average Cash Deposits/Average Residents Boarding Paying Cash = $4,040/4,738 = $0.87 (See "Comparison of Cash/Deposits and Use of Tickets FY2019 Avg." with calculations highlighted in yellow) CyRide's full fare was increased to $1.25 between January 2012 and May 2018. CyRide then decreased its fares back in May 2018 from $1.25 to $1.00 and its half fares from $.60 to $.50. Additionally, CyRide cannot utilize FY2020 average fares due to no fares collected for portions of FY2020 due to COVID-19 and lower ridership thereafter. Therefore, the FY2019 average fares are more representative for upcoming services in FY2022.

Please note: CyRide does not bill for indirect costs.

Comparison of Cash/Deposits and Use of Tickets
Since May 2008

Account # 550-1100-345.42-00
Fixed Route Fares

From:	To:	Deposit	Cash Fares	Rides/ Day	Avg. Fare	Cash/ Day	RF Ticket	FF Ticket	RF Percent	FF Percent	RF/ Day	FF/ Day
7/6/18	7/24/2018	$ 3,607.78	5,261	277	$ 0.69	$ 189.88	1801	441	80.3%	19.7%	94.8	23.2
7/25/18	8/7/18	$ 3,029.41	3,956	283	$ 0.77	$ 216.39	1208	328	78.6%	21.4%	86.3	23.4
8/8/18	8/21/18	$ 5,525.75	4,605	329	$ 1.20	$ 394.70	801	367	68.6%	31.4%	57.2	26.2
8/22/18	9/5/18	$ 4,836.26	5,055	337	$ 0.96	$ 322.42	716	391	64.7%	35.3%	47.7	26.1
9/6/18	9/18/18	$ 4,119.32	4,770	367	$ 0.86	$ 316.87	915	322	74.0%	26.0%	70.4	24.8
9/19/18	10/2/18	$ 4,039.31	4,719	337	$ 0.86	$ 288.52	962	310	75.6%	24.4%	68.7	22.1
10/3/18	10/16/18	$ 4,863.76	4,976	355	$ 0.98	$ 347.41	924	288	76.2%	23.8%	66.0	20.6
10/17/18	10/30/18	$ 4,411.83	4,949	354	$ 0.89	$ 315.13	893	256	77.7%	22.3%	63.8	18.3
10/31/18	11/14/18	$ 3,411.21	5,170	345	$ 0.66	$ 227.41	822	284	74.3%	25.7%	54.8	18.9
11/15/18	11/27/18	$ 3,396.23	3,318	255	$ 1.02	$ 261.25	478	162	74.7%	25.3%	36.8	12.5
11/28/18	12/11/18	$ 4,196.11	4,531	324	$ 0.93	$ 299.72	852	287	74.8%	25.2%	60.9	20.5
12/12/18	1/8/19	$ 5,168.96	7,008	250	$ 0.74	$ 184.61	1054	336	75.8%	24.2%	37.6	12.0
1/9/19	1/22/19	$ 4,119.89	4,218	301	$ 0.98	$ 294.28	590	284	67.5%	32.5%	42.1	20.3
1/23/19	2/5/19	$ 3,898.84	3,925	280	$ 0.99	$ 278.49	509	314	61.8%	38.2%	36.4	22.4
2/6/19	2/19/19	$ 4,240.94	4,737	338	$ 0.90	$ 302.92	687	371	64.9%	35.1%	49.1	26.5
2/20/19	3/5/19	$ 4,382.58	4,793	342	$ 0.91	$ 313.04	624	376	62.4%	37.6%	44.6	26.9
3/6/19	3/19/19	$ 4,211.23	4,579	327	$ 0.92	$ 300.80	647	203	76.1%	23.9%	46.2	14.5
3/20/19	4/2/19	$ 3,438.35	4,948	353	$ 0.69	$ 245.60	1010	272	78.8%	21.2%	72.1	19.4
4/3/19	4/16/19	$ 4,332.65	5,103	365	$ 0.85	$ 309.48	767	228	77.1%	22.9%	54.8	16.3
4/17/19	4/30/19	$ 3,771.30	4,379	313	$ 0.86	$ 269.38	779	241	76.4%	23.6%	55.6	17.2
5/1/19	5/14/19	$ 3,583.64	4,941	353	$ 0.73	$ 255.97	766	239	76.2%	23.8%	54.7	17.1
5/15/19	6/4/19	$ 3,867.25	6,354	303	$ 0.61	$ 184.15	949	328	74.3%	25.7%	45.2	15.6
6/5/19	6/20/19	$ 3,119.40	5,404	338	$ 0.58	$ 194.96	1134	279	80.3%	19.7%	70.9	17.4
6/21/19	7/2/19	$ 5,110.24	3,496	291	$ 1.46	$ 425.85	992	249	79.9%	20.1%	82.7	20.8
7/3/19	7/17/19	$ 3,576.47	4,090	273	$ 0.87	$ 238.43	872	244	78.1%	21.9%	58.1	16.3
7/18/19	7/30/19	$ 2,791.00	3,894	300	$ 0.72	$ 214.69	1125	188	85.7%	14.3%	86.5	14.5
7/31/19	8/13/19	$ 2,040.47	4,163	297	$ 0.49	$ 145.75	870	257	77.2%	22.8%	62.1	18.4
8/14/19	8/27/19	$ 4,652.20	4,760	340	$ 0.98	$ 332.30	679	275	71.2%	28.8%	48.5	19.6
8/28/19	9/10/19	$ 5,319.18	5,363	383	$ 0.99	$ 379.94	640	209	75.4%	24.6%	45.7	14.9
9/11/19	9/17/19	$ 4,107.34	4,762	680	$ 0.86	$ 586.76	404	160	71.6%	28.4%	57.7	22.9
9/18/19	10/1/19	$ 5,215.40	5,640	403	$ 0.92	$ 372.53	640	310	67.4%	32.6%	45.7	22.1
10/2/19	10/15/19	$ 5,139.23	5,785	413	$ 0.89	$ 367.09	661	276	70.5%	29.5%	47.2	19.7
10/16/19	10/29/19	$ 5,562.53	5,847	418	$ 0.95	$ 397.32	785	225	77.7%	22.3%	56.1	16.1
10/30/19	11/12/19	$ 4,376.60	4,891	349	$ 0.89	$ 312.61	754	253	74.9%	25.1%	53.9	18.1
11/13/19	11/19/19	$ 2,970.30	2,984	426	$ 1.00	$ 424.33	350	130	72.9%	27.1%	50.0	18.6
11/20/19	12/3/19	$ 2,685.42	4,372	312	$ 0.61	$ 191.82	631	225	73.7%	26.3%	45.1	16.1
12/4/19	12/11/19	$ 128.00	2,878	360	$ 0.04	$ 16.00	379	127	74.9%	25.1%	47.4	15.9
12/12/19	12/17/19	$ 4,531.28	1,830	305	$ 2.48	$ 755.21	236	74	76.1%	23.9%	39.3	12.3
12/18/19	1/9/20	$ 3,464.36	6,045	263	$ 0.57	$ 150.62	980	271	78.3%	21.7%	42.6	11.8
1/10/20	1/22/20	$ 3,971.63	3,990	307	$ 1.00	$ 305.51	529	246	68.3%	31.7%	40.7	18.9
1/23/20	2/5/20	$ 5,562.19	4,905	350	$ 1.13	$ 397.30	776	294	72.5%	27.5%	55.4	21.0
2/6/20	2/20/20	$ 3,243.77	4,876	325	$ 0.67	$ 216.25	857	311	73.4%	26.6%	57.1	20.7
2/21/20	3/4/20	$ 3,823.46	4,324	333	$ 0.88	$ 294.11	709	277	71.9%	28.1%	54.5	21.3
3/5/20	3/19/20	$ 2,616.37	3,636	242	$ 0.72	$ 174.42	539	202	72.7%	27.3%	35.9	13.5
3/20/20	8/13/20	$ 3,962.90	5,302	36	$ 0.75	$ 26.96	632	224	73.8%	26.2%	4.3	1.5
Avg. before 1/2012		$ 3,763	4,398	486	$ 0.86	$ 399.60	508	245	67.5%	32.5%	54	27
Avg. after 1/2012		$ 4,557	4,557	319	$ 1.00	$ 323.23	913	465	66.3%	33.7%	63	32
Average FY2014		$ 5,176	4857	343	$ 1.06	$ 365.50	825	557	59.5%	40.5%	59	39
Average FY2015		$ 4,501	4402	305	$ 1.03	$ 315.22	973	541	63.5%	36.5%	68	38
Average FY2016		$ 4,089	3877	282	$ 1.06	$ 300.73	931	501	64.8%	35.2%	67	36
Average FY2017		$ 4,464	4317	283	$ 1.05	$ 296.32	1085	564	63.6%	36.4%	70	37
Average FY2018		$ 3,914	3796	270	$ 1.04	$ 283.48	997	454	67.8%	32.2%	68	32
Average FY2019		$ 4,040	4738	319	$ 0.87	$ 276.63	880	292	74.4%	25.6%	59	20
Average FY2020		$ 3,862	4545	344	$ 0.89	$ 307.73	634	229	73.4%	26.6%	47	17

Added Trips
(#12 Lilac - Midday)
Schedule

Activity	Completion Date
Service Begins (3rd year ICAAP*)	October 1, 2022
Service Ends (3rd year ICAAP*)	September 30, 2023

* This is a Year 3 request for ICAAP funding for Lilac weekday mid-day service. If approved for Year 3 ICAAP funding, CyRide anticipates continuing this service after ICAAP funding ends through its budget process.

CyRide
Added Frequency (#12 Lilac - Midday)
Official Certification

The Ames Transit Agency (CyRide) Board of Trustees certifies that it shall:

(1) commit the necessary local matching funding for project implementation and

(2) upon project completion, be responsible for adequately maintaining and operating the project for public use during the project's useful life.

Liz Jeffery, Ames Transit Agency President

8/11/2021
Date

CyRide
Added Trips (#12 Lilac - Midday)
MPO Resolution DRAFT

The Ames Area Metropolitan Planning Organization (AAMPO) approved and endorsed this project on September 28, 2021 with a resolution approving this grant. The resolution is attached.

The ICAAP application form (Form 230017; page 3 of 6) requires that the project must be identified in the fiscally constrained transportation plan (TIP). However, the ICAAP handbook has been revised to state that "Awarded projects" must be added to approved MPO TIP's and STIP's (See below).

> ***https://iowadot.gov/systems_planning/pdf/ICAAP_Application_Handbook.pdf (page 5):***
> ***Awarded projects*** *must be added to approved MPO or RPA transportation improvement programs (TIPs) and Iowa's Statewide Transportation Improvement Program (STIP).*

Therefore, when this ICAAP project has been formally approved by the Iowa DOT Commission (early January 2022), the funding will be amended and approved by the MPO in the AAMPO's FY2022 Transportation Improvement Program in order to begin transferring the federal funding from FHWA to FTA and gain formal grant approval from the Federal Transit Administration.

Added Trips (#12 Lilac - Midday)
Emissions Calculation

Calculation/Assumption	Factors	CO	VOC (HC)	NOx
Net Project Cost	**$37,287**			
Lilac Midday Net Operating Cost	$37,287			
Operating for One Year - $37,287				
Number of Years In Project - Operating	1			
#12 Lilac Midday Route Service Assumptions				
Number of days/Yr. in Project (ISU Classdays & Finals Days)	160			
Avg. Rd-Trip Commute (Miles*)	5.3			
# Daily Trips	7			
# Riders/Trip	50			
Number of Daily Miles for Lilac	37.1			
Total Estimated Avg. Daily Ridership	350			
Total Cars Taken From Roadway Weekdays (1.2/car)	292			
Emission Reduction By Riders Taking LILAC - Midday				
Emission Factor (30 mph) - LDGV		13.84	2.063	1.032
Emission Factor x Avg. Commute Length*		73.35	10.9339	5.4696
#12 Lilac Midday: Gross Red. x 160 days x Cars From Roadway x 1 year		3,423,093	510,249	255,248
Total LDGV Emissions Reduced (#12 Lilac Route)		3,423,093	510,249	255,248
Emission Increase For Standard Buses:				
Emission Factor (10 mph) - HDDV		5.544	0.915	10.176
(40' Bus) HDDV #12 Lilac Emissions x 37.1 miles/day x 160 days x 1 year		32,909	5,431	60,405
TOTAL (40' Bus) HDDV Emissions		32,909	5,431	60,405
Net Reduction for LILAC Midday ROUTE :		**3,390,184**	**504,817**	**194,843**
Cost Effectiveness for LILAC - Midday		**$ 11.00**	**$ 73.86**	**$ 191.37**
Net Reduction for Project :		**3,390,184**	**504,817**	**194,843**
Total Reduction for Project - kg/project		**3,390.2**	**504.8**	**194.8**
Net Reduction Per Year:		**3,390,184**	**504,817**	**194,843**
Total Reduction Per Year - kg/year		**3,390.2**	**504.8**	**194.8**
Cost Effectivness:				
Total Project Cost		**$37,287**		
One Yr. Project Total Cost= ($37,287/1)		**$37,287**		
CO		**$11.00**		
VOC		**$73.86**		
NOx		**$191.37**		

* Based on statistics, riders are riding the entire Lilac Mid-day route to reach their destination

IOWADOT
Form 105101 (3-18)

Minority Impact Statement

Pursuant to 2008 Iowa Acts, HF 2393, Iowa Code 8.11, all grant applications submitted to the State of Iowa that are due beginning Jan. 1, 2009, shall include a Minority Impact Statement. This is the state's mechanism for requiring grant applications to consider the potential impact of the grant project's proposed programs or policies on minority groups.

Please choose the statement(s) that pertains to this grant application. Complete all the information requested for the chosen statement(s). Submit additional pages as necessary.

☑ The proposed grant project programs or policies could have a disproportionate or unique **positive** impact on minority persons.

Describe the positive impact expected from this project.

The City of Ames has an 10.24% Asian population and any new route expansion on high capacity corridors will certainly have a positive impact on this minority and limited-English proficient group living within the Ames community. Specifically, the routes in west Ames travels along the Mortensen, Steinbeck and Dickensen corridors in west Ames which have developed into a high capacity corridors where a majority of university students reside in high residential apartment complexes. The residents living in these apartments along these corridors will be provided transportation directly to central ISU campus. While this service is designed to serve the general public, Ames residents of all races and genders living within the community will benefit from this grant application and service.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☑ Asians

☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other_____

☐ The proposed grant project programs or policies could have a disproportionate or unique **negative** impact on minority persons.

Describe the negative impact expected from this project.

Present the rationale for the existence of the proposed program or policy.

Provide evidence of consultation with representatives of the minority groups impacted.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☐ Asians
☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other _____

☐ The proposed grant project programs or policies are **not expected to have** a disproportionate or unique impact on minority persons.

Present the rationale for determining no impact.

I hereby certify that the information on this form is complete and accurate, to the best of my knowledge.

Name Barbara Neal

Title Transit Director

Definitions

"Minority Persons," as defined in Iowa Code 8.11, means individuals who are women, persons with a disability, Blacks, Latinos, Asians or Pacific Islanders, American Indians, and Alaskan Native Americans.

"Disability," as defined in Iowa Code 15.102, subsection 7, paragraph "b," subparagraph (1):
b. As used in this subsection:

(1) *"Disability"* means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of the individual, a record of physical or mental impairment that substantially limits one or more of the major life activities of the individual, or being regarded as an individual with a physical or mental impairment that substantially limits one or more of the major life activities of the individual.

"Disability" does not include any of the following:
(a) Homosexuality or bisexuality.
(b) Transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments or other sexual behavior disorders.
(c) Compulsive gambling, kleptomania, or pyromania.
(d) Psychoactive substance abuse disorders resulting from current illegal use of drugs.

"State Agency," as defined in Iowa Code 8.11, means a department, board, bureau, commission, or other agency or authority of the State of Iowa.

Iowa Department of Transportation
Clean Air Attainment Funds Application

Added Night Trips
(#6 Brown - Night)

Submitted to:

IOWA DOT

By:

AMES TRANSIT AGENCY (CYRIDE)
601 N. University Blvd.
Ames, Iowa 50010

October 1, 2021

Form 230017 (05-20)

IOWADOT

PROJECT APPLICATION
IOWA CLEAN AIR ATTAINMENT PROGRAM (ICAAP)

General Information:

Applicant Agency: Ames Transit Agency (Public Agency (required)) E-mail: bneal@cyride.com

Contact Person (*Name and Title*): Barbara Neal, Transit Director

Complete Mailing Address: 601 N. University Blvd.

Ames (City) | IA (State) | 50010 (ZIP Code) | 515-239-5565 (Daytime Phone)

If more than one agency or organization is involved in this project, please state the name, contact person, mailing address, and telephone number of the second agency. *(Attach an additional page if more than two agencies are involved.)*

Co-Applicant Agency: (Public Agency, Non-Profit Organization[1], For-Profit Organization[1], or Individual[1]) E-mail:

Contact Person (*Name and Title*):

Complete Mailing Address: (Street Address and/or Box Number)

City | State | ZIP Code | Daytime Phone

Project Information:

Project Title[2]: #6 Brown - Night

Project Description (including length, if applicable):

In August 2018, CyRide redesigned its service throughout Ames which included adding service until 8:00pm on the #6 Brown route. However, the community desired even later trips along this route due to evening university evening classes and meetings. As a result, CyRide added additional night service trips in August 2019 on this route due to additional demand from residents between North Grand Mall and Towers residence halls (partial segment of the full route). Therefore, this ICAAP request is for these additional night trips for service beginning in October 2022.

*Project priority (1 = highest priority): 3 (a sponsor submitting multiple applications in this funding cycle must assign a numerical rank or priority to each application.)[3]

*Assign the proposed project to one or more of the following categories (check one or more):

- ☐ Transportation-Related Project in the State Implementation Plan (SIP)
- ☐ Transportation Control Measure (TCM)
- ☐ Traffic Flow Improvement (Intersection, Signalization, Other)
- ☐ Planning and Project Development
- ☐ Travel Demand Management (TDM)
- ☑ Transit-Related Improvement
- ☐ Shared-Ride
- ☐ Bicycle or ☐ Pedestrian Facility or Program (select one)
- ☐ Intermodal Freight
- ☐ Passenger
- ☐ Alternative Fuels
- ☐ Vehicle Inspection and Maintenance Program
- ☐ Outreach Activity (Education, Advertising, or Technical Assistance)

*Is the project consistent with the State Implementation Plan for air quality for non-attainment areas? ☐ Yes ☐ No ☑ Not Applicable

*Is the project consistent with the MPO's local congestion management plan? ☐ Yes ☐ No ☑ Not Applicable

*Is the project consistent with the ☑ MPO ☐ RPA ☐ Statewide Long-Range Transportation Plan? ☑ Yes ☐ No ☐ Not Applicable

Notes: [1]Requires public agency as co-sponsor of application.
[2]The term "project" means any ICAAP infrastructure or program proposal.
[3]The Iowa Department of Transportation will use the priority ratings to reflect the sponsor.

Project Costs *(an itemized breakdown must be included on an attached sheet)*:

Total Cost: $35,323.00

Iowa Clean Air Attainment Program Fund Request: $28,258.00

Applicant Match $7,065.00

Projects with a private for-profit co-applicant require a minimum 50 percent applicant match; all other projects require a minimum 20 percent applicant match.

	List All Applicant Match Sources	Amount	Assured or Anticipated (Date Anticipated)
1.	CyRide Operating Budget	$7,065.00	July 01, 2022
2.	Estimated fares (cost above is 'net')	$111.00	October 03, 2022
3.			

Are any state funds involved in this project? ☐ Yes ● No

If Yes, please explain the source and conditions:

Are any other federal funds involved in this project? ☐ Yes ● No

If Yes, please explain the source and conditions:

Estimated Project Development Schedule:

Design: Start Date: _____ Completion Date: _____

Land Acquisition: Start Date: _____ Completion Date: _____

Construction: Start Date: _____ Completion Date: _____

Has any part of this project been started? ● Yes ☐ No

If Yes, please explain:

CyRide began the first year of service in August 2019 with 100% local funding from CyRide. Previous ICAAP requests (Year 1 ICAAP) funded year two of services from 10/1/2020 through 9/30/2021 and (Year 2 ICAAP) funded year three of services from 10/1/2021 through 9/30/2022. If funded, this ICAAP expansion (Year 3 ICAAP) would fund the fourth year of services from October 1, 2022 through September 30, 2023.

How do you plan to measure the success of this project?

Four evaluation methods will be used: 1) Passenger Ridership 2) Customer Comments 3) Passengers per hour and 4) Total Emissions saved

Required Documentation and Narrative Information

The following documents and narratives must be submitted with this application. In the upper right corner of each document or narrative write the corresponding letter shown below.

☑ A. A NARRATIVE assessing existing congestions/air quality conditions, outlining the concept of the proposed project, and providing adequate project justification. How will this project reduce congestion, reduce travel or single occupant vehicle usage, and/or improve air quality? Which transportation-related pollutant(s) are being addressed: carbon monoxide, ozone, or particulate matter (PM)?

☑ B. A DETAILED MAP identifying the location of the project and clearly differentiating the subject project from any past or future project phases.

☑ C. An ITEMIZED BREAKDOWN of the total project costs. This documentation does not need to be a detailed, line-item type of estimate. However, it must accomplish two objectives: First, it must show the method by which the cost estimate was prepared; and second, it must enable a reviewer to determine if the cost estimate is reasonable. The manner in which these objectives are achieved may vary widely depending on the type, scope, and complexity of the project. Absent a fully itemized list of costs, some general guidelines for possible methods of estimating each type of project cost are provided on Attachment A.

☑ D. A TIME SCHEDULE for the total project development.

☑ E. An OFFICIAL CERTIFICATION from the applicant's governing body (authority) that it shall:
(1) commit the necessary local matching funding for project implementation and
(2) upon project completion, be responsible for adequately maintaining and operating the project for public use during the project's useful life.

☑ F. An ADOPTED FORMAL RESOLUTION from the appropriate MPO or RPA declaring the sponsor's proposed project or program conforms to the MPO's or RPA's regional transportation planning process. (For MPOs, the project or program must be identified in the fiscally constrained transportation plan and, if applicable, the congestion management plan in TMAs.)

☑ G. CALCULATIONS for vehicle emission reductions and total project cost-effectiveness for the targeted pollutants. Project applicant must show through a quantitative analysis how many kilograms of pollutant will be reduced (CO, VOC, NOx, and, if applicable, PM). Project sponsor must calculate the cost-effectiveness of the project by: Dividing the total annualized project cost by the number of kilograms per year of pollutant reduced ($ per kg). Applicant must also show all assumptions and source of data used to calculate the estimates. The applicant must use the most current vehicle emission factors developed by the Iowa DNR and consistent with the U.S. EPA's MOBILE 6.2 air quality model. These emission factors are periodically updated and may be obtained from the Iowa DOT's ICAAP website at: https://iowadot.gov/systems_planning/Grant-Programs/Iowa-Clean-Air-Attainment-Program-ICAAP.

☑ H. Completed MINORITY IMPACT STATEMENT attached to application.

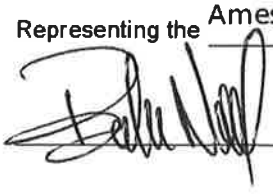
The award of ICAAP funds; any subsequent funding or letting of contracts for design, construction, reconstruction, improvement, or maintenance; and the furnishing of materials for this project shall not involve direct or indirect interest of any state, county, or city official, elective or appointive. All of the above are prohibited by Iowa Code 314.2, 362.5, or 331.342. Any award of funding or any letting of a contract in violation of the foregoing provisions shall invalidate the award of ICAAP funding and authorize a complete recovery of any funds previously disbursed.

Certification

To the best of my knowledge and belief, all information included in this application is true and accurate, including the commitment of all physical and financial resources. This application has been duly authorized by the participating local authority. I understand the attached **official endorsement(s)** binds the participating local governments to assume responsibility for adequate maintenance of any new or improved facilities.

If ICAAP funding assistance is approved for the project described in this application, I understand that an executed contract between the applicant and the Iowa DOT is required before such funding assistance can be authorized for use in implementing the project.

Representing the Ames Transit Agency
(Name of Applicant's Governing Authority)



Signature

August 11, 2021
Date

Barbara Neal, Transit Director
Typed Name and Title
(Governing Authority Official)

August 11, 2021
Date

CyRide
(#6 Brown - Night)
Added Trips

Narrative

Background

Ames Transit Agency (d.b.a CyRide) directly operates fixed route services that are open to the general public within the Ames community including Iowa State University (ISU). The amount of transit service in this small community, of approximately 65,000 is unusually high as a result of the intensive use by university students. To accommodate this high transit demand, CyRide operates 18 hours a day with service frequencies between 4 – 40 minutes. **However in the last six years, ISU enrollment has grown by 22% from 28,682 students to approximately 35,000! During this same timeframe, CyRide's ridership has grown by over 1.6 million passengers.**

In May 2017, CyRide completed its first ever system redesign study (https://www.cyride.com/system-redesign) and residents along the #6 Brown route demanded later evening transit service along these corridors through the public input process. As a result of the entire service modifications, CyRide offered later evening service until 8:00 p.m. on the entire #6 Brown route to the ISU Research Park. This allowed employees to work in this area later at night as well as served major apartment complexes in the University Blvd. corridor. In addition, Iowa State University expanded its evening classes as late as 10:00 pm and the campus Library remained open until midnight. Thus, there remained gaps in service and residents were still complaining that they couldn't travel via bus back home in the evening from campus.

Due to overwhelming requests by the public, CyRide added additional night trips to this route, between Towers – Campus – North Grand Mall - that began in August 2019 funded at 100% with CyRide's local budget due to demand for these evening trips until 10:00 p.m. While the service does not serve the ISU Research Park area, the limited English proficient community is served that live along Stange and Bloomington north of campus.

Therefore, this ICAAP application request is only for **#6 Brown night trips** between Towers and North Grand Mall beginning in October 2022.

Project Description/Justification

Grant Request
Added Trips - #6 Brown - Night

The funding request below is for additional evening trips for the **#6 Brown** route implemented between Towers residence halls – ISU campus - North Grand Mall during Iowa State University class days. This service was initially implemented in August 2019 with 100% CyRide local funds. ICAAP guidelines allow transit agencies to fund three years of services within the first five years of service. The Board's initial approval for this additional service was in January 2019 for the FY2019 budget after the ICAAP's October 2018 grant application deadline. ICAAP funded this service for its third year of operation between October 2021 through September 2022.

This ICAAP request is for **evening #6 Brown's** fourth year of operation (3rd Year ICAAP) for service beginning October 2022 through September 2023.

The information below describes CyRide's full request for the operating of the **#6 Brown – Night** service.

#6 Brown – Night
(ISU School Weekdays) – Year 3

CyRide proposes to provide new evening trips for the #6 Brown route, by operating a bus every 30 minutes during the weekday evenings between 8:00 pm – 10:30 pm operating between Towers residence halls – Iowa State University (ISU) campus – North Grand Mall. (This route will not travel the route segment between Towers and the ISU Research Park after 8:00 p.m.) **Additionally, this route will operate only when Iowa State University holds school-year classes or approximately 160 weekdays out of the year.**

Below are the additional trips that were added for Brown North and Brown South services.

#6 Brown South (Night Service) ISU Class Days and Finals Days Only (Added Night trips shown below)					
North Grand Mall	Aspen & Stange	Kildee Hall	Friley Hall	Lynn & Knapp	Towers Turnaround
8:00	8:08	8:15	8:20	8:22	8:25
8:30	8:38	8:45	8:50	8:52	8:55
9:00	9:08	9:15	9:20	9:22	9:25
9:30	9:38	9:45	9:50	9:52	9:55

#6 Brown North (Night Service) ISU Class Days and Finals Days Only (Added Night trips shown below)					
Towers Turnaround	Lynn & Knapp	Student Services	Bessey Hall	Aspen & Stange	North Grand Mall
8:30	8:32	8:34	8:39	8:45	8:53
9:00	9:02	9:04	9:09	9:15	9:23
9:30	9:32	9:34	9:39	9:45	9:53
10:00	10:02	10:04	10:09	10:15	10:23

CyRide anticipates that this route will generate 180 daily riders on this added evening service given that it serves apartments and university housing in high-density areas along Bloomington, Stange, and Welch. Specifically, there is a large limited English proficient group living in the Schilletter Village and University Village university housing complexes along Stange. This has a high concentration of Mandarin Chinese speaking residents that would benefit from additional service on the #6 Brown route. Specifically, they noted that evening connections to the Walmart and North Grand Mall areas were essential for their shopping needs.

CyRide anticipates a healthy ridership over ISU class days during the evenings as residents become more and more aware of the new trips and how they serve them. (See Exhibit B – Brown Route for route alignment details.)

The following information provides operation-specific data for these additional trips:

#6 Brown Weekday (Night Trips)
Hours of Service: 3.8
Number of Trips: 4
Avg. Passengers/Trip (Year 1): 45
Miles/Trip: 11.7
Miles: 46.8
Days of Operation/Year: 160 (ISU Class & Finals days only)
Ridership: 180 daily rides (45 pass/trip * 4 trips)
This route will serve the following commercial, residential and university destinations as illustrated within Exhibit B:

- **#6 Brown (Added Night Trips):** Towers Residence Halls, Welch Road apartments, ISU Campustown Businesses (86 total); http://www.amescampustown.com/, Greek Housing, Memorial Union, ISU Campus (Student Services, Union Drive Association, Kildee/Bessey Halls), Fredrickson Court (high residential housing), University Village (high residential housing), Schilletter Village (high residential housing, Ames Fitness Center North, Somerset Veterinary Hospital, Wallaby's Bar & Grille, El Azteca, Mainstream Living, Dentistry at Somerset, Brick City Grill, Fareway Grocery, Somerset Village (high residential housing), WalMart, JCPenney, Kohl's, TJ Maxx, North Grand Mall (https://northgrandmall.com/) businesses.

Added Emissions Factors

The project emissions in Exhibit G are calculated based on the required Iowa DNR's current vehicle emission factors data posted on the Iowa DOT's ICAAP website

Conclusion

The advantages of supporting this grant application can provide numerous benefits to the City of Ames/Iowa State University/Story County through:

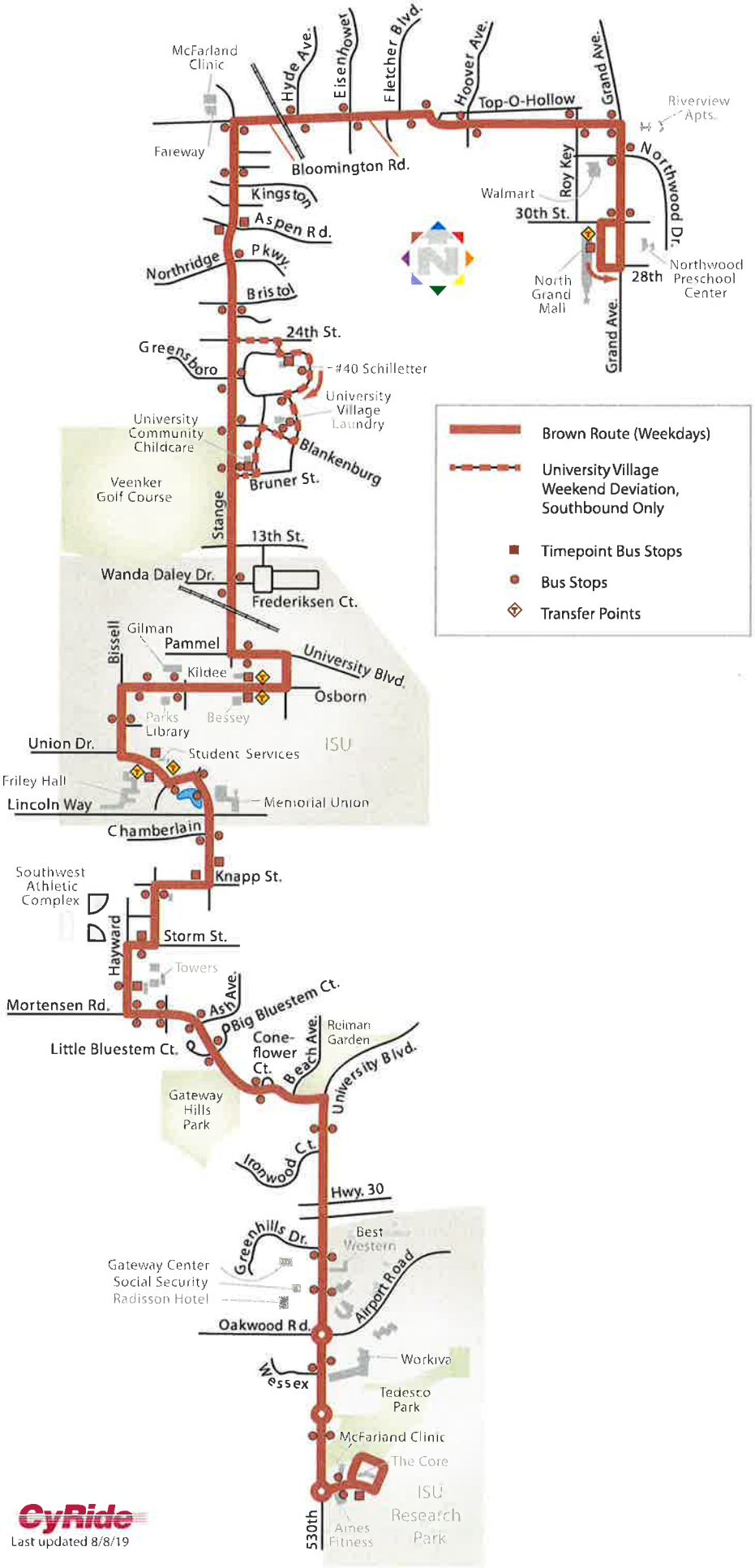
- Increased transit service coverage
- Improved transit trips during the evening
- Improved air quality with fewer single-occupant cars and technologically improved bus engines

While students are committed to paying for the improved services required to meet their higher transit demands, unanticipated financial increases in the double-digits would be needed to support these new evening trips. Unanticipated ridership and financial increases occur when reliable enrollment numbers are not available until only a few weeks after the fall semester begins. ICAAP funding will allow student fees to increase more gradually, so that at the end of the three-year allowance, funding will be sufficient to continue these services into the future.

Without funding for this service enhancement, passengers would either need to walk home after evening classes or find a ride from a friend. Additional evening trips were one of the most requested improvements during the initial implementation of service in 2018-2019. The evening service on Brown should be added to allow later evening services to these areas of the LEP community. CyRide estimates that approximately 28,800 new rides would be generated from these extra trips provided along the Brown route corridors throughout a single year.

CyRide encourages the Iowa DOT to provide support for this night route expansion (second year request for ICAAP funding) along these high-density corridors and LEP community living in Schilletter/University Villages.

BROWN ROUTE 6 Effective August 19, 2019



CyRide

Last updated 8/8/19

CyRide
Added Trips (#6 Brown - Night)
Budget

This is the fourth year the service has been in operation, but the third year of requesting ICAAP funding as the initial year 1 was provided with 100% local funding due to timing issues under the application process. Therefore, CyRide is now requesting Year 1 funds as allowed by federal guidance and the Iowa DOT's ICAAP application handbook to spread three years of funding requests over a period of up to 5 years. CyRide is spreading it over 4 years.

Activity	Cost
OPERATING:	
#6 Brown Weekday Route (NIGHT – ISU School Days Only)	
YEAR 3– (Request for service beginning October 2022); Service Began 8/2019 (100% funded by CyRide)	
Costs calculated below are the first year costs being requested in the third and final year.	
Driver Wages – 3.8 hrs./day x 160 days x $39.46/hr =	$23,992
Consumables –11.7 miles/trip x 4 trips/day x 160 days x $1.528/mile =	$11,442
SUBTOTAL	$35,434
Less Fares	
0.2 riders/trip x 4 trips x 160 days x **$0.87 average resident fare =	($111)
49.8 riders/trip x 4 trips x 160 days x $0.00 fare (Free ISU ID card) =	($0)
YEAR 3 SUBTOTAL Brown - Night (less fares) =	**$35,323**

SUBTOTAL OPERATING	**35,323**
TOTAL COST	**$35,323**
ICAAP Share	**$28,258**
CyRide Share (assured)	**$7,065**

NOTES:

** **Average Resident Fare** = Average Cash Deposits/Average Residents Boarding Paying Cash = $4,040/4,738 = $0.87 (See "Comparison of Cash/Deposits and Use of Tickets FY2019 Avg." with calculations highlighted in yellow) CyRide's full fare was increased to $1.25 between January 2012 and May 2018. CyRide then decreased its fares back in May 2018 from $1.25 to $1.00 and its half fares from $.60 to $.50. Additionally, CyRide cannot utilize FY2020 average fares due to no fares collected for portions of FY2020 due to COVID-19 and lower ridership thereafter. In FY2021, students attended university virtually and ridership plummeted. Therefore, the FY2019 average fares are more representative for upcoming services in FY2022.

Please note: CyRide does not bill for indirect costs.

Comparison of Cash/Deposits and Use of Tickets
Since May 2008

Account # 550-1100-345.42-00
Fixed Route Fares

From:	To:	Deposit	Cash Fares	Rides/ Day	Avg. Fare	Cash/ Day	RF Ticket	FF Ticket	RF Percent	FF Percent	RF/ Day	FF/ Day
7/6/18	7/24/2018	$ 3,607.78	5,261	277	$ 0.69	$ 189.88	1801	441	80.3%	19.7%	94.8	23.2
7/25/18	8/7/18	$ 3,029.41	3,956	283	$ 0.77	$ 216.39	1208	328	78.6%	21.4%	86.3	23.4
8/8/18	8/21/18	$ 5,525.75	4,605	329	$ 1.20	$ 394.70	801	367	68.6%	31.4%	57.2	26.2
8/22/18	9/5/18	$ 4,836.26	5,055	337	$ 0.96	$ 322.42	716	391	64.7%	35.3%	47.7	26.1
9/6/18	9/18/18	$ 4,119.32	4,770	367	$ 0.86	$ 316.87	915	322	74.0%	26.0%	70.4	24.8
9/19/18	10/2/18	$ 4,039.31	4,719	337	$ 0.86	$ 288.52	962	310	75.6%	24.4%	68.7	22.1
10/3/18	10/16/18	$ 4,863.76	4,976	355	$ 0.98	$ 347.41	924	288	76.2%	23.8%	66.0	20.6
10/17/18	10/30/18	$ 4,411.83	4,949	354	$ 0.89	$ 315.13	893	256	77.7%	22.3%	63.8	18.3
10/31/18	11/14/18	$ 3,411.21	5,170	345	$ 0.66	$ 227.41	822	284	74.3%	25.7%	54.8	18.9
11/15/18	11/27/18	$ 3,396.23	3,318	255	$ 1.02	$ 261.25	478	162	74.7%	25.3%	36.8	12.5
11/28/18	12/11/18	$ 4,196.11	4,531	324	$ 0.93	$ 299.72	852	287	74.8%	25.2%	60.9	20.5
12/12/18	1/8/19	$ 5,168.96	7,008	250	$ 0.74	$ 184.61	1054	336	75.8%	24.2%	37.6	12.0
1/9/19	1/22/19	$ 4,119.89	4,218	301	$ 0.98	$ 294.28	590	284	67.5%	32.5%	42.1	20.3
1/23/19	2/5/19	$ 3,898.84	3,925	280	$ 0.99	$ 278.49	509	314	61.8%	38.2%	36.4	22.4
2/6/19	2/19/19	$ 4,240.94	4,737	338	$ 0.90	$ 302.92	687	371	64.9%	35.1%	49.1	26.5
2/20/19	3/5/19	$ 4,382.58	4,793	342	$ 0.91	$ 313.04	624	376	62.4%	37.6%	44.6	26.9
3/6/19	3/19/19	$ 4,211.23	4,579	327	$ 0.92	$ 300.80	647	203	76.1%	23.9%	46.2	14.5
3/20/19	4/2/19	$ 3,438.35	4,948	353	$ 0.69	$ 245.60	1010	272	78.8%	21.2%	72.1	19.4
4/3/19	4/16/19	$ 4,332.65	5,103	365	$ 0.85	$ 309.48	767	228	77.1%	22.9%	54.8	16.3
4/17/19	4/30/19	$ 3,771.30	4,379	313	$ 0.86	$ 269.38	779	241	76.4%	23.6%	55.6	17.2
5/1/19	5/14/19	$ 3,583.64	4,941	353	$ 0.73	$ 255.97	766	239	76.2%	23.8%	54.7	17.1
5/15/19	6/4/19	$ 3,867.25	6,354	303	$ 0.61	$ 184.15	949	328	74.3%	25.7%	45.2	15.6
6/5/19	6/20/19	$ 3,119.40	5,404	338	$ 0.58	$ 194.96	1134	279	80.3%	19.7%	70.9	17.4
6/21/19	7/2/19	$ 5,110.24	3,496	291	$ 1.46	$ 425.85	992	249	79.9%	20.1%	82.7	20.8
7/3/19	7/17/19	$ 3,576.47	4,090	273	$ 0.87	$ 238.43	872	244	78.1%	21.9%	58.1	16.3
7/18/19	7/30/19	$ 2,791.00	3,894	300	$ 0.72	$ 214.69	1125	188	85.7%	14.3%	86.5	14.5
7/31/19	8/13/19	$ 2,040.47	4,163	297	$ 0.49	$ 145.75	870	257	77.2%	22.8%	62.1	18.4
8/14/19	8/27/19	$ 4,652.20	4,760	340	$ 0.98	$ 332.30	679	275	71.2%	28.8%	48.5	19.6
8/28/19	9/10/19	$ 5,319.18	5,363	383	$ 0.99	$ 379.94	640	209	75.4%	24.6%	45.7	14.9
9/11/19	9/17/19	$ 4,107.34	4,762	680	$ 0.86	$ 586.76	404	160	71.6%	28.4%	57.7	22.9
9/18/19	10/1/19	$ 5,215.40	5,640	403	$ 0.92	$ 372.53	640	310	67.4%	32.6%	45.7	22.1
10/2/19	10/15/19	$ 5,139.23	5,785	413	$ 0.89	$ 367.09	661	276	70.5%	29.5%	47.2	19.7
10/16/19	10/29/19	$ 5,562.53	5,847	418	$ 0.95	$ 397.32	785	225	77.7%	22.3%	56.1	16.1
10/30/19	11/12/19	$ 4,376.60	4,891	349	$ 0.89	$ 312.61	754	253	74.9%	25.1%	53.9	18.1
11/13/19	11/19/19	$ 2,970.30	2,984	426	$ 1.00	$ 424.33	350	130	72.9%	27.1%	50.0	18.6
11/20/19	12/3/19	$ 2,685.42	4,372	312	$ 0.61	$ 191.82	631	225	73.7%	26.3%	45.1	16.1
12/4/19	12/11/19	$ 128.00	2,878	360	$ 0.04	$ 16.00	379	127	74.9%	25.1%	47.4	15.9
12/12/19	12/17/19	$ 4,531.28	1,830	305	$ 2.48	$ 755.21	236	74	76.1%	23.9%	39.3	12.3
12/18/19	1/9/20	$ 3,464.36	6,045	263	$ 0.57	$ 150.62	980	271	78.3%	21.7%	42.6	11.8
1/10/20	1/22/20	$ 3,971.63	3,990	307	$ 1.00	$ 305.51	529	246	68.3%	31.7%	40.7	18.9
1/23/20	2/5/20	$ 5,562.19	4,905	350	$ 1.13	$ 397.30	776	294	72.5%	27.5%	55.4	21.0
2/6/20	2/20/20	$ 3,243.77	4,876	325	$ 0.67	$ 216.25	857	311	73.4%	26.6%	57.1	20.7
2/21/20	3/4/20	$ 3,823.46	4,324	333	$ 0.88	$ 294.11	709	277	71.9%	28.1%	54.5	21.3
3/5/20	3/19/20	$ 2,616.37	3,636	242	$ 0.72	$ 174.42	539	202	72.7%	27.3%	35.9	13.5
3/20/20	8/13/20	$ 3,962.90	5,302	36	$ 0.75	$ 26.96	632	224	73.8%	26.2%	4.3	1.5
Avg. before 1/2012		$ 3,763	4,398	486	$ 0.86	$ 399.60	508	245	67.5%	32.5%	54	27
Avg. after 1/2012		$ 4,557	4,557	319	$ 1.00	$ 323.23	913	465	66.3%	33.7%	63	32
Average FY2014		$ 5,176	4857	343	$ 1.06	$ 365.50	825	557	59.5%	40.5%	59	39
Average FY2015		$ 4,501	4402	305	$ 1.03	$ 315.22	973	541	63.5%	36.5%	68	38
Average FY2016		$ 4,089	3877	282	$ 1.06	$ 300.73	931	501	64.8%	35.2%	67	36
Average FY2017		$ 4,464	4317	283	$ 1.05	$ 296.32	1085	564	63.6%	36.4%	70	37
Average FY2018		$ 3,914	3796	270	$ 1.04	$ 283.48	997	454	67.8%	32.2%	68	32
Average FY2019		$ 4,040	4738	319	$ 0.87	$ 276.63	880	292	74.4%	25.6%	59	20
Average FY2020		$ 3,862	4545	344	$ 0.89	$ 307.73	634	229	73.4%	26.6%	47	17

Added Trips
(#6 Brown - Night)
Schedule

Activity	Completion Date
Service Begins (3rd year ICAAP*)	October 1, 2022
Service Ends (3rd year ICAAP*)	September 30, 2023

* This is a Year 3 request for ICAAP funding for Brown weeknight service. If approved for Year 3 ICAAP funding, CyRide anticipates continuing this service when funding ends through its budget process.

CyRide
Added Trips (#6 Brown - Night)
Official Certification

The Ames Transit Agency (CyRide) Board of Trustees certifies that it shall:

(1) commit the necessary local matching funding for project implementation and

(2) upon project completion, be responsible for adequately maintaining and operating the project for public use during the project's useful life.

Liz Jeffery, Ames Transit Agency President

8/11/2021
Date

CyRide
Added Trips (#6 Brown - Night)
MPO Resolution DRAFT

The Ames Area Metropolitan Planning Organization (AAMPO) approved and endorsed this project on September 28, 2021 with a resolution approving this grant. The resolution is attached.

The ICAAP application form (Form 230017; page 3 of 6) requires that the project must be identified in the fiscally constrained transportation plan (TIP). However, the ICAAP handbook has been revised to state that "Awarded projects" must be added to approved MPO TIP's and STIP's (See below).

> ***https://iowadot.gov/systems_planning/pdf/ICAAP_Application_Handbook.pdf (page 5):***
> ***Awarded projects*** *must be added to approved MPO or RPA transportation improvement programs (TIPs) and Iowa's Statewide Transportation Improvement Program (STIP).*

Therefore, when this ICAAP project has been formally approved by the Iowa DOT Commission (early January 2022), the funding will be amended and approved by the MPO in the AAMPO's FY2022 Transportation Improvement Program in order to begin transferring the federal funding from FHWA to FTA and gain formal grant approval from the Federal Transit Administration.

Added Trips (#6 Brown- Night
Emissions Calculation

Calculation/Assumption	Factors	CO	VOC (HC)	NOx
Net Project Cost	**$35,323**			
Brown Night Net Operating Cost	$35,323			
Operating for One Year - $35,323				
Number of Years In Project - Operating	1			
#6 Brown Route Service Assumptions				
Number of days/Yr. in Project (ISU Classdays & Finals Days)	160			
Avg. Rd-Trip Commute (Miles*)	11.7			
# Daily Trips	4			
# Riders/Trip	45			
Number of Daily Miles	46.8			
Total Estimated Avg. Daily Ridership	180			
Total Cars Taken From Roadway Weekdays (1.2/car)	150			
Emission Reduction By Riders Taking LILAC				
Emission Factor (30 mph) - LDGV		13.84	2.063	1.032
Emission Factor x Avg. Commute Length*		161.93	24.1371	12.0744
#6 Brown: Gross Red. x 160 days x Cars From Roadway x 1 year		3,886,272	579,290	289,786
Total LDGV Emissions Reduced		3,886,272	579,290	289,786
Emission Increase For Standard Buses:				
Emission Factor (10 mph) - HDDV		5.544	0.915	10.176
(40' Bus) HDDV Emissions x 46.8 miles/day x 160 days x 1 year		41,513	6,852	76,198
TOTAL (40' Bus) HDDV Emissions		41,513	6,852	76,198
Net Reduction for Brown Night:		**3,844,759**	**572,439**	**213,588**
Cost Effectiveness for Brown Night		**$ 9.19**	**$ 61.71**	**$ 165.38**
Net Reduction for Project :		**3,844,759**	**572,439**	**213,588**
Total Reduction for Project - kg/project		**3,844.8**	**572.4**	**213.6**
Net Reduction Per Year:		**3,844,759**	**572,439**	**213,588**
Total Reduction Per Year - kg/year		**3,844.8**	**572.4**	**213.6**
Cost Effectivness:				
Total Project Cost		**$35,323**		
One Yr. Project Total Cost= ($35,323/1)		**$35,323**		
CO		**$9.19**		
VOC		**$61.71**		
NOx		**$165.38**		

* Based on statistics, riders are riding the entire Brown route to reach their destination

IOWADOT
Form 105101 (3-18)

Minority Impact Statement

Pursuant to 2008 Iowa Acts, HF 2393, Iowa Code 8.11, all grant applications submitted to the State of Iowa that are due beginning Jan. 1, 2009, shall include a Minority Impact Statement. This is the state's mechanism for requiring grant applications to consider the potential impact of the grant project's proposed programs or policies on minority groups.

Please choose the statement(s) that pertains to this grant application. Complete all the information requested for the chosen statement(s). Submit additional pages as necessary.

☑ The proposed grant project programs or policies could have a disproportionate or unique **positive** impact on minority persons.

Describe the positive impact expected from this project.

The City of Ames has an 10.24% Asian population and any new route expansion on high capacity corridors will certainly have a positive impact on this minority and LEP group living within the Ames community. Specifically, the Brown route directly serves limited English proficient community living along Stange Road in Schilletter/University Villages. The residents living in these areas will be provided transportation directly to central ISU campus, campustown and shopping area along the route later in the evening providing a positive impact on this transit dependent population. While this service is designed to serve the general public, Ames residents of all races and genders living within the community will benefit from this grant application and service.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☑ Asians

☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other_____

☐ The proposed grant project programs or policies could have a disproportionate or unique **negative** impact on minority persons.

Describe the negative impact expected from this project.

Present the rationale for the existence of the proposed program or policy.

Provide evidence of consultation with representatives of the minority groups impacted.

Indicate which groups are impacted.

☐ Women ☐ Persons with a disability ☐ Blacks ☐ Latinos ☐ Asians
☐ Pacific Islanders ☐ American Indians ☐ Alaskan Native Americans ☐ Other _____

☐ The proposed grant project programs or policies are **not expected to have** a disproportionate or unique impact on minority persons.

Present the rationale for determining no impact.

I hereby certify that the information on this form is complete and accurate, to the best of my knowledge.

Name Barbara Neal

Title Transit Director

Definitions

"Minority Persons," as defined in Iowa Code 8.11, means individuals who are women, persons with a disability, Blacks, Latinos, Asians or Pacific Islanders, American Indians, and Alaskan Native Americans.

"Disability," as defined in Iowa Code 15.102, subsection 7, paragraph "b," subparagraph (1):
b. As used in this subsection:
(1) *"Disability"* means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of the individual, a record of physical or mental impairment that substantially limits one or more of the major life activities of the individual, or being regarded as an individual with a physical or mental impairment that substantially limits one or more of the major life activities of the individual.

"Disability" does not include any of the following:
(a) Homosexuality or bisexuality.
(b) Transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments or other sexual behavior disorders.
(c) Compulsive gambling, kleptomania, or pyromania.
(d) Psychoactive substance abuse disorders resulting from current illegal use of drugs.

"State Agency," as defined in Iowa Code 8.11, means a department, board, bureau, commission, or other agency or authority of the State of Iowa.

AGENDA ITEM: #5
DATE: 9-02-21

AMES AREA METROPOLITAN PLANNING ORGANIZATION

TRANSPORTATION TECHNICAL COMMITTEE

SUBJECT: DRAFT PUBLIC PARTICIPATION PLAN (PPP)

BACKGROUND:

The Public Participation Plan (PPP) details how the Ames Area MPO involves the public and stakeholders in its transportation planning efforts. It includes public and stakeholder engagement goals and strategies that the MPO plans to implement so that all interested parties have ample opportunity to get involved with the MPO's transportation planning efforts and planning document updates. It also details how to access the MPO's relevant transportation planning information and documentation.

All MPOs are federally required to have a PPP. The Iowa DOT requires that MPOs update their PPP at least every five years. The Ames Area MPO's last update to the PPP was in 2016. Therefore, the MPO's PPP is due for an update in 2021. The Iowa DOT provided new guidelines for the development of PPPs this year. This Draft PPP was developed utilizing these new guidelines.

The Draft PPP is broken into six primary sections which are shown below. Additionally, Appendix B shows a list of stakeholders and public groups.

Section	Pages	Section Title	Key Topics
1	4-6	Introduction	Document Purpose, Overview of the MPO, MPO Contact Information
2	7-9	Regulations	Iowa DOT, FHWA, FTA, EJ, LEP, Title VI, and State Regulations
3	10-11	Public Outreach Strategies	Website, Notifications, Publications, Media, Social Media, Newsletter
4	12-13	Public Input Methods	Public Hearings, Public Input Sessions, Workshops, Open Houses, Surveys, Comment Periods, Visuals
5	14-19	Planning Documents	Information on & Processes for the PPP, MTP, TIP, TPWP, PTP, Amendments
6	20-21	Underserved Populations	Overview/Goals, Accommodations, Complaint Procedures

The following table details the public comment period and procedures for review of final drafts or amendments for each of the five core planning documents:

Planning Document	Final Draft Public Comment Period Minimum Length (Days)	Final Draft Public Input Sessions (# Sessions)	Amendments Public Comment Period Minimum Length (Days)
PPP	45	≥ 1	45
MTP	30	≥ 1	15
TIP	30	≥ 1	15
TPWP	30	≥ 1	15
PTP	30	≥ 1	15

While the Public Participation Plan is due for an update in 2021, the Iowa DOT is also requiring MPOs to submit new FTA Title VI Programs by November 1, 2021. Typically, the MPOs latest PPP is included within the FTA Title VI Program. Therefore, it seems appropriate that the MPO update its PPP by this date, so that the FTA Title VI Program properly reflects the MPO's current public participation strategies and procedures with the inclusion of the newly updated PPP. Once the Draft PPP is reviewed and approved by the MPO's Transportation Technical and Policy Committees, the draft document will undergo a 45-day public comment period. During this time, the Iowa DOT will also review the draft document. Once final feedback is received and incorporated into the PPP, the final document will be presented to the Transportation Policy Committee again for public hearing and final approval.

ALTERNATIVES:

1. Recommend the Draft Public Participation Plan to the Transportation Policy Committee for draft approval and setting of the date of public hearing.
2. Recommend the Draft Public Participation Plan, with Transportation Technical Committee modifications, to the Transportation Policy Committee for draft approval and setting of the date of public hearing.

ADMINISTRATOR'S RECOMMENDATION:

MPO staff have developed this Public Participation Plan based on applicable federal and state regulations and the latest Iowa DOT guidance.

Therefore, it is recommended by the Administrator that the Transportation Technical Committee adopt Alternative No. 1, thereby recommending the presented ICAAP projects to the Transportation Policy Committee for formal resolution.

DRAFT

Public Participation Plan

2021 Update

AAMPO

AMES AREA METROPOLITAN PLANNING ORGANIZATION

AMES | GILBERT | STORY | BOONE

The Ames Area Metropolitan Planning Organization prepared this report with funding from the U.S. Department of Transportation's Federal Highway Administration and Federal Transit Administration, and in part through local matching funds of the Ames Area MPO member governments. These contents are the responsibility of the Ames Area MPO. The U.S. government and its agencies assume no liability for the contents of this report or for the use of its contents. The Ames Area MPO approved this document on October 26, 2021.

CONTENTS

1 - Introduction

1.1 Document Purpose

The Public Participation Plan (PPP) details how the Ames Area MPO (AAMPO) involves the public and stakeholders in its transportation planning efforts. This document will provide public and stakeholder engagement goals and strategies that the MPO plans to implement so that all interested parties have ample opportunity to get involved with the MPO's transportation planning efforts and planning document updates. It will also detail how the MPO will provide easy access to relevant transportation planning information and documentation.

MPOs are federally required to develop a Public Participation Plan. The Iowa Department of Transportation (DOT) requires that MPOs update their PPP at least every five years. AAMPO last updated its PPP in 2016. Even though five years is the maximum timeframe between PPP updates, AAMPO continually reviews its public and stakeholder engagement strategies and will update its PPP whenever warranted.

1.2 AAMPO Overview and Planning Area

The AAMPO was officially designated the MPO of the Ames urbanized area by the Governor of Iowa in March 2003. This designation was the result of the Ames urbanized area having a population greater than 50,000 in the 2000 Census.

As a result of the 2010 Census, the urbanized areas of Ames and Gilbert were combined into one urbanized area, therefore requiring the Metropolitan Planning Area to be expanded to encompass this area in its entirety. The Ames Area MPO approved the current Metropolitan Planning Area boundary on November 13, 2012 (shown in **Figure 1**). The City of Gilbert and Iowa State University were added to the Transportation Policy Committee on March 26, 2013.

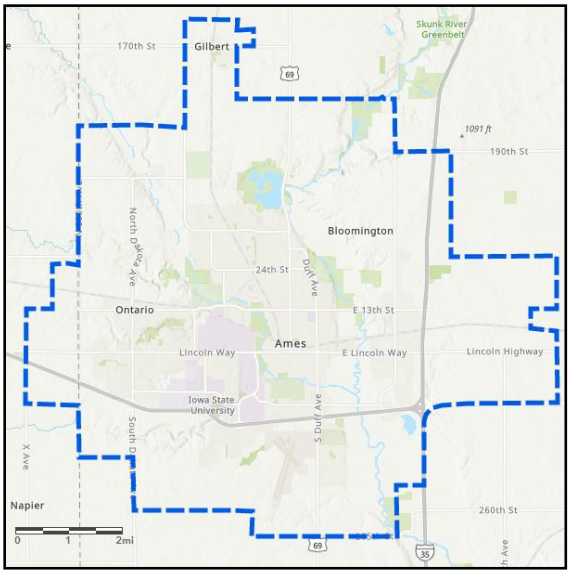


Figure 1: AAMPO Boundary (Adopted Nov 13, 2012)

The Ames Area MPO provides and coordinates various transportation planning and improvement efforts throughout the Ames urban area. This includes coordination includes and consultation with the MPO's various stakeholders, which are described in **Appendix B**.

Ames is located in central Iowa and is served by Interstate 35, US Highway 30, and US Highway 69. Surface transportation needs are met through over 251 centerline miles of streets. The community has a very progressive transit system, CyRide, which typically carries approximately six million passengers each year. While most transit users have Iowa State University ties, CyRide serves the entire Ames community. The Ames Area MPO area includes the Ames Municipal Airport, which serves general aviation needs for business, industry, and recreation users. On average, 104 aircraft operations occur per day at the Ames Municipal Airport. Railroads provide freight service to the area by dual east-west mainline tracks and a northern agricultural spur.

The Ames Area MPO consists primarily of two standing committees: The Transportation Policy Committee and the Transportation Technical Committee.

1.3 Transportation Policy Committee

The Transportation Policy Committee (TPC) is the policy setting board of the MPO and the membership consists of local officials. Voting membership on the committee includes city and county governments located, wholly or partially, in the Ames Area MPO planning boundary, as well as the local transit agency. Currently the TPC membership includes the City of Ames, City of Gilbert, CyRide, Boone County, and Story County. The Iowa Department of Transportation, Federal Highway Administration, Federal Transit Administration, and Iowa State University serve as advisory, non-voting, representatives.

Transportation Policy Committee Membership		
Representative Agency	***Member***	***Representative Agency Role***
City of Ames (Chair)	John Haila	Mayor
City of Ames	Bronwyn Beatty-Hansen	Council Member
City of Ames	Gloria Betcher	Council Member
City of Ames	Amber Corrieri	Council Member
City of Ames	Tim Gartin	Council Member
City of Ames	David Martin	Council Member
City of Ames	Rachel Junck	Council Member
Boone County	Bill Zinnel	Board of Supervisors
Story County	Linda Murken	Board of Supervisors
Ames Transit Agency (CyRide)	Jacob Ludwig	CyRide Board Member
City of Gilbert	Jonathan Popp	Mayor
Iowa Dept. of Transportation ‡	Andy Loonan	District 1 Transportation Planner
Iowa Dept. of Transportation ‡	Zac Bitting	Metropolitan and Regional Planning Coordinator
Iowa Dept. of Transportation ‡	Cindy Shearer	Statewide Planning Support
Federal Highway Administration ‡	Darla Hugaboom	Iowa Division Community Planner
Federal Highway Administration ‡	Sean Litteral	Planning and Development Team Leader
Federal Transit Administration ‡	Gerri Doyle	Region 7 Community Planner
Iowa State University ‡	Brandi Latterell	Director for Planning Services

‡ Non-voting

1.4 Transportation Technical Committee

The Transportation Technical Committee (TTC) consists of technical personnel from various agencies involved in transportation issues within the planning area. The TTC formulates the procedural details of the Transportation Planning Work Program. The committee reviews and monitors the output of various MPO activities identified in the work program and makes recommendations to the policy committee. The committee is also responsible for assisting in developing Transportation Improvement Programs and Metropolitan Transportation Plans. The Iowa Department of Transportation, the Federal Highway Administration, and the Federal Transit Administration serve as advisory, non-voting, representatives.

Transportation Technical Committee Membership		
Representative Agency	***Member***	***Representative Agency Role***
City of Ames (Chair)	Damion Pregitzer	Traffic Engineer
City of Ames (Vice-Chair)	Kelly Diekmann	Director of Planning & Housing
City of Ames	Justin Clausen	Operations Manager
City of Ames	Justin Moore	Planner
City of Ames	Tracy Peterson	Municipal Engineer
Ames Transit Agency (CyRide)	Barb Neal	Transit Director
Iowa State University	Sarah Lawrence	Campus Planner
Boone County	Scott Kruse	County Engineer
Story County	Darren Moon	County Engineer
Ames Community School Dist.	Gerry Peters	Facilities Director
Ames Economic Development Commission	Dan Culhane	President & Chief Executive Officer
Iowa Dept. of Transportation ‡	Andy Loonan	District 1 Transportation Planner
Iowa Dept. of Transportation ‡	Zac Bitting	Metropolitan and Regional Planning Coordinator
Iowa Dept. of Transportation ‡	Cindy Shearer	Statewide Planning Support
Federal Highway Administration ‡	Darla Hugaboom	Iowa Division Community Planner
Federal Highway Administration ‡	Sean Litteral	Planning and Development Team Leader
Federal Transit Administration ‡	Gerri Doyle	Region 7 Community Planner

‡ Non-voting

1.5 MPO Staff & Contact Information

There are numerous ways to contact and engage with the MPO staff, including:

Website: www.aampo.org

Primary Phone: (515) 239-5169

Email: **Staff Contact List**

Mail/Office: Ames Area MPO

515 Clark Ave

Ames, IA, 50010

2 - Regulations

There are several federal and state regulations pertaining to participation in the MPOs transportation planning activities for members of the public and agency stakeholders. These regulations are described in the following section.

2.1 Transportation Planning Requirements

23 CFR 450.316 details several federal requirements that MPOs need to follow regarding public and stakeholder participation. In short, these regulations cover the development and content requirements for Public Participation Plans, documentation of public comments on planning documents such as Transportation Improvement Programs (TIPs) and Metropolitan Transportation Plans (MTPs), the 45-day public comment period requirement for initial or revised PPPs, and coordination with regional agencies and officials which are responsible for other planning activities or are affected by regional planning activities.

2.2 Iowa DOT Requirements

The Iowa DOT provides guidance documentation to Iowa MPOs and RPAs for the development and maintenance of Public Participation Plans. Within this guidance, the Iowa DOT states various requirements that help ensure that PPPs are both effective and comply with the various federal requirements and regulations. Some of the more significant requirements are listed here:

- The PPP is required to be updated at least every five years.
- The PPP must be developed in consultation with all interested parties.
- The minimum required public comment period is 45 calendar days before final adoption.
- The Draft PPP must be submitted to Iowa DOT staff for review before final adoption.
- The Final PPP must be provided to Iowa DOT, FHWA, FTA, and published online.
- The PPP must cover public-related procedures for all five of the MPOs core planning documents which include the MTP, PPP, PTP, TIP, and TPWP.
- All draft planning documents provided to the public for input should be in final draft form.
- Timeframes and notification methods for meeting agendas, public hearing notices, and public comment periods should be explicitly stated in the PPP.
- Meeting agendas, meeting minutes, current planning documents, and Title VI documentation (including notice to public, complaint form, and related documents) should be posted on the MPO's website.

2.3 Title VI

"Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in any program or activity that receives Federal funds or other Federal financial assistance." MPOs receive federal funding from both the FHWA and FTA and are therefore required to adhere to Title VI requirements. Additionally, FTA has published FTA Circular 4702.1B, Title VI Requirements and Guidelines for Federal Transit Administration Recipients. All recipients of FTA funds, including MPOs, are su

bject to these requirements. In addition to Title VI specific regulations, there also additional non-discrimination protection regulations that agencies receiving federal funds must follow. Section 162 (a) of the Federal-Aid Highway Act of 1973 (23 USC 324) covers the prohibition of sex-based discrimination. The Age Discrimination Act of 1975 prohibits discrimination based on age. Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 prohibits discrimination based on disabilities.

2.4 Environmental Justice

The Environmental Protection Agency (EPA) states that "Environmental justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies." There are several regulations pertaining to environmental justice in minority populations and low-income populations including Executive Order 12898, U.S. DOT Order 5610.2(a), FTA Circular 4703.1, and FHWA Order 6640.23A.

These regulations ensure that government agencies (such as MPOs), are providing reasonable opportunities for all people (regardless of race, color, origin, or income) to be able to actively participate in decisions and planning efforts that may affect their environment and/or health. Additionally, MPOs need to assess and consider the potential impact their planning efforts and future projects may have on the health and the environment for minority and low-income populations.

2.5 Limited English Proficiency

Executive Order 13166, signed August 11, 2000, "requires Federal agencies to examine the services they provide, services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them." Additionally, in accordance with this Executive Order, the U.S. DOT issued its own LEP Guidance, which applies to all recipients of U.S. DOT funding, including MPOs.

2.6 Iowa Open Meetings

Chapter 21 of the Code of Iowa details the full regulations pertaining to the open meetings law. Some key points that relate to MPO meetings include:

- Public notice must be given for the time, date, place, and agenda for meetings.
- Meetings need to be held at a place and time reasonably accessible to the public.
- Meetings must be conducted in open session, with certain exceptions that may apply for holding a closed session.
- Meeting minutes must be kept which include the date, time, place, members present, and actions taken.
- Electronic meetings may be conducted only in circumstances where meeting in person is impossible or impractical. Electronic meetings still need to be accessible to the public and minutes still need to be kept.

2.7 Iowa Public Records

Chapter 22 of the Code of Iowa details the full regulations pertaining to the public records law. Some key points that relate to MPO meetings include:

- The public has the right to examine and copy public records.
- The agency may adopt and enforce reasonable rules regarding the examination and copying of the records.
- If the agency's physical possession, the right to examine public records should be free of charge.
- The agency may charge a reasonable fee for time and expense required for supervising examination and copying the records, not exceed the actual cost of providing the service.
- Some records are considered confidential and are not subject to public release in the absence of a court order, as outlined in Chapter 22.7.

3 - Public Outreach Strategies

The goal of the Ames Area MPO is to ensure that all interested parties are well-informed and have ample notice and ability to provide meaningful input for all transportation planning activities and initiatives. To do this, AAMPO utilizes various strategies and mediums for which to reach out to members of the public as well as the region's stakeholders (see **Appendix B** for a list of stakeholders).

3.1 Ames Area MPO Website

The Ames Area MPO website, www.aampo.org, provides information about all MPO activities and efforts and can be automatically translated into over 90 languages. Current versions and information on the five core planning documents (MTP, TPWP, TIP, PPP, & PTP) are detailed on this website. The PTP webpage has information regarding their upcoming meetings, agendas, and meeting notes. Some past planning document versions are also directly available along with an email link to request older versions. Information on upcoming public comment periods, public input sessions, workshops, and public hearing dates can also be found on the website. The Title VI Notice to the Public, Title VI Complaint Form, and all Title VI documentation can be found on the website. Information on all Transportation Policy Committee and Transportation Technical Committee meetings are all referenced including agendas, meeting materials, and meeting minutes. The AAMPO also provides additional information and links about other transportation planning initiatives on the website such as transit planning, Safe Routes to School maps, and the Regional ITS Architecture document. The AAMPO will also now begin to work on providing more access to transportation data (both from internal and external data sources) through interactive web maps (examples will include traffic volumes, intersection turning movement counts, segment & intersection crash data, as well as MTP & TIP projects).

3.2 E-Mail Notifications

Anyone may sign up online at https://www.cityofames.org/living/email-notification-sign-up to receive MPO-related notifications pertaining to upcoming meetings, events, and news items. Subscribers to this service may opt out at any time after initial sign up.

3.3 Publications

Information about all MPO meetings is added to the existing public meeting calendar which is produced weekly and is distributed to local newspapers such as the Ames Tribune and ISU Daily. Formal notices for public hearings are published in the Ames Tribune. Press releases to area newspapers and radio stations will be used utilized to notify citizens of upcoming MPO activities.

3.4 TV & Streaming

The City of Ames maintains a local governmental access cable channel (Channel 12), a YouTube channel, and a live stream on the City's website for broadcasting public meetings. This includes the MPO's Transportation Policy Committee meetings and workshops. Archived versions of these meetings can also be found on the YouTube channel or on the City's website.

3.5 Social Media

The Ames Area MPO does not currently have its own social media account on any platform. However, the public is provided notice about MPO plan updates through the City of Ames's social media accounts on Facebook and Twitter. The public can submit comments and feedback on MPO-related posts on those social media platforms.

3.6 City Slickers (City of Ames Newsletter)

Meeting information for the AAMPO is included as a part of the City of Ames' newsletter, City Slickers, which is distributed monthly by mail with utility bills to City of Ames residents. City Slickers is also posted on the City of Ames social media accounts as well electronically distributed to all City of Ames employees.

4 - Public Input Methods

The Ames Area MPO wants to ensure that the public has numerous methods to provide input on the MPO's planning documents and planning efforts. This section outlines the various strategies the MPO utilizes to provide ample opportunity for citizens and stakeholders to be involved. The AAMPO will always consider and respond to all public input received during program development and planning processes.

4.1 Public Hearings

The AAMPO Transportation Policy Committee (TPC) hosts formal public hearings for final approval of any of the core planning documents during the committee meeting. Additionally, the public is welcome to comment during TPC meetings on any of the agenda items when that item is up for discussion and is also provided an opportunity to provide comments on topics not on the agenda.

4.2 Public Input Sessions

MPO staff will hold Public Input Sessions, which are informal opportunities for members of the public to provide comments, input, and ask questions about MPO plans and documents. These sessions are typically one hour in length. They may be held virtually (Microsoft Teams, Zoom, etc.) or in-person in Ames City Hall. These sessions are designed to be flexible, allowing the public to come and go at any point during the specified time period of the input session. Staff will provide copies of any needed materials, such as copies of planning documents, as appropriate. Public Input Sessions are typically held at least once during the public comment period of each of the five core planning documents. They may also be held for other important MPO planning efforts.

4.3 Workshops & Open Houses

Workshops and open houses are typically meetings with a series of activities aimed to be visually engaging and gather public input in the form of written, spoken, or other forms. Workshops and open houses can employ several activities such as visual preference surveys, mapping activities, discussions, and other input gathering strategies. Workshops and open houses are commonly utilized during the development of Metropolitan Transportation Plans (MTPs) but may be held during other planning efforts, as appropriate.

4.4 Surveys

Surveys may be conducted using the MPO website or by using mailings to gather input and information from a large number of citizens. The AAMPO typically conducts a Regional Transportation Survey during development of MTPs. This survey helps residents present their opinions on the current state of the transportation system and their hopes for the future of the transportation system. It also helps the MPO gather information about the public's travel characteristics and preferences.

4.5 Comments

The MPO always accepts comments from the public for any topic, whether in-person, by phone, or by email (see Section 1.5 for contact information). The MPO also monitors social media posts for any feedback. The MPO holds public comment periods for all five core planning documents. This is the opportunity when members of the public can submit their comments to MPO staff on the final draft planning document before it is finalized and brought forward for the public hearing and final approval. A public comment period is also required for any amendments to planning documents. Public comments received on the MTP and the TIP are always documented within the final version of the planning document.

4.6 Visualization Techniques

The MPO ensures that visualization techniques are incorporated into public participation activities. The MPO website and interactive web-based GIS maps may be utilized to provide another method of receiving feedback and comments. One application of this would be the ability of citizens to provide project-specific feedback on projects listed in the MTP or the TIP on an interactive GIS map.

5 - Planning Documents

This section will describe each of the five core planning documents that the MPO maintains as well as the development process for each planning document (including public participation processes).

5.1 Public Participation Plan (PPP)

The PPP details how the AAMPO involves the public and stakeholders in its transportation planning efforts. It provides public and stakeholder engagement goals and strategies that the MPO plans to implement so that all interested parties have ample opportunity to get involved with the MPO's transportation planning efforts and planning document updates. It also details how the MPO will provide easy access to relevant transportation planning information and documentation.

The PPP is required to be updated at least every five (5) years, or as needed. The development process (shown in Figure 2) includes a 45-day public comment period, a public input session, and a public hearing. Information on the Public Participation Plan and how to sign up for e-notifications about meeting dates and news is always available on the MPO website at: https://www.cityofames.org/government/aampo/about-the-mpo/public-participation-plan.

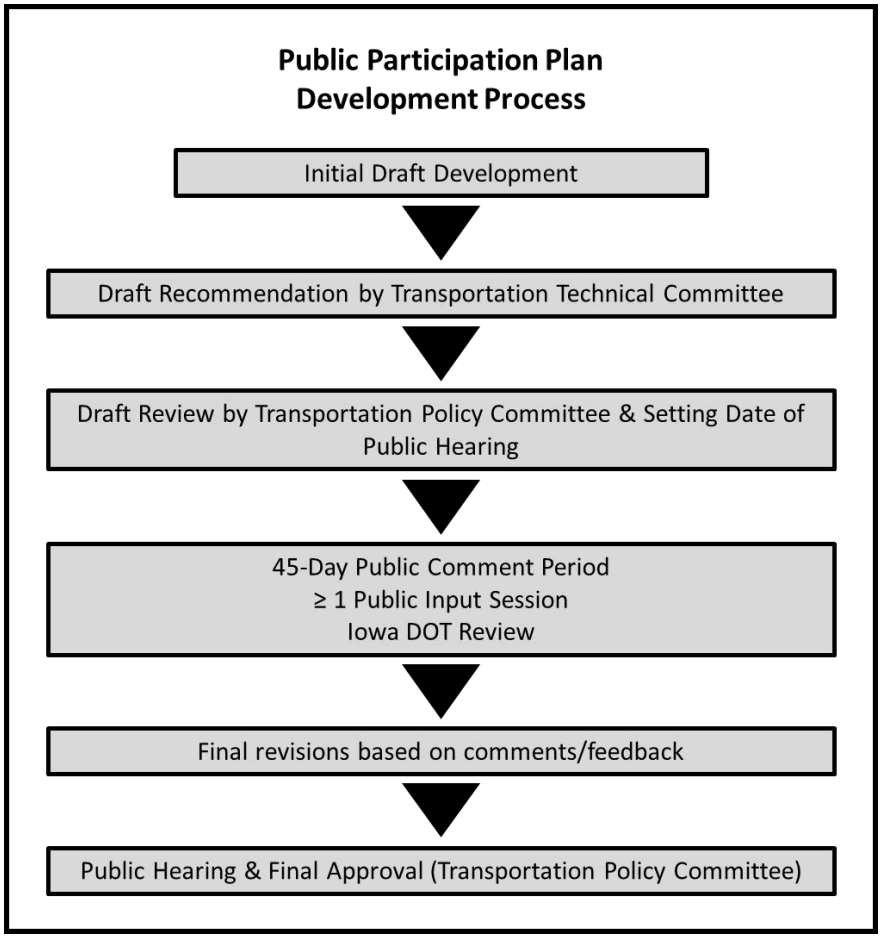


Figure 2: Public Participation Plan Development Process

5.2 Metropolitan Transportation Plan (MTP)

The Metropolitan Transportation Plan (MTP) acts a framework for guiding the AAMPO's transportation investments and policy decisions over a 25-year period by identifying a regional vision for a multi-modal transportation system through stakeholder and community input. This includes developing short-term, medium-term, and long-term plans for regional project programming based upon a performance-based, community-driven approach.

The MTP is required to be updated every five (5) years. The development process for the MTP is shown in Figure 3. Because the MTP utilizes a community-driven planning approach, members of the public and regional stakeholders need to be involved early in the plan's development. As such, during the initial plan development, multiple input methods may be utilized including surveys, workshops (for the public, TTC, and TPC), and public open houses or input sessions. During review of the final draft plan, there will be a 30-day public comment period, at least one public input session, and a public hearing on the date of final approval. Information on the Metropolitan Transportation Plan is always available on the MPO website at: https://www.cityofames.org/government/aampo/ames-mobility-2040-lrtp.

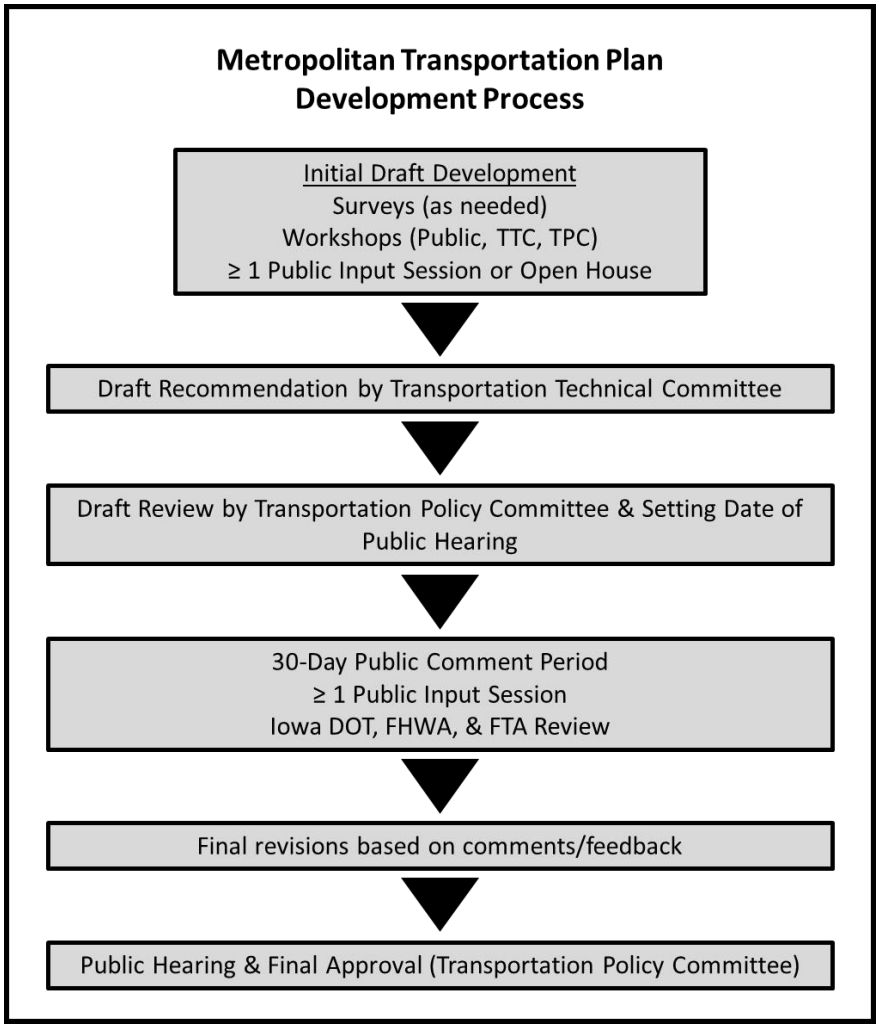


Figure 3: Metropolitan Transportation Plan Development Process

5.3 Transportation Improvement Program (TIP)

The Transportation Improvement Program is a 4-year implementation program for federally funded and regionally significant transportation projects within the Ames region. It reflects the investment priorities that are established in the MTP. Additionally, any projects funded with Section 5310 (Enhanced Mobility for Seniors and Individuals with Disabilities) funding needs to be identified previously in the Passenger Transportation Plan (PTP) prior to being identified in the TIP. The AAMPO TIP is included in the Statewide Transportation Improvement Program (STIP), which is developed by the Iowa DOT.

The TIP is updated annually. The development process (shown in Figure 4) includes a 30-day public comment period, a public input session, and a public hearing. Information on the Transportation Improvement Program is always available on the MPO website at: https://www.cityofames.org/government/aampo/tip.

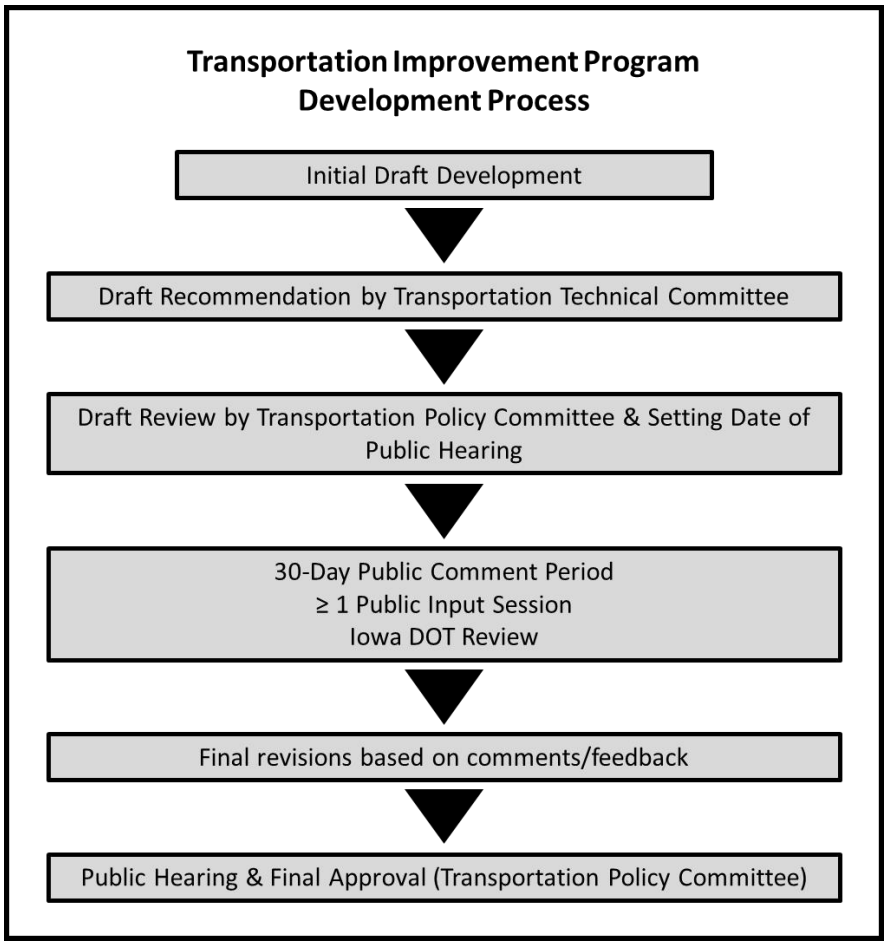


Figure 4: Transportation Improvement Program Development Process

5.4 Transportation Planning Work Program (TPWP)

The Transportation Planning Work Program (TPWP) functions as the regional work plan for the Ames Area MPO. Each TPWP covers one fiscal year and defines the anticipated work and tasks to be performed. This work is broken down into major planning activities. The document includes details on who will perform the various planning activities, the schedule for completing the activities, the resulting products and expectations of each activity, as well as the total program budget for the year (including funding amounts for each activity).

A new TPWP is developed annually, since each TPWP only covers a single fiscal year. The development process (shown in Figure 5) includes a 30-day public comment period, a public input session, and a public hearing. Information on the Transportation Planning Work Program is always available on the MPO website at: https://www.cityofames.org/government/aampo/tpwp.

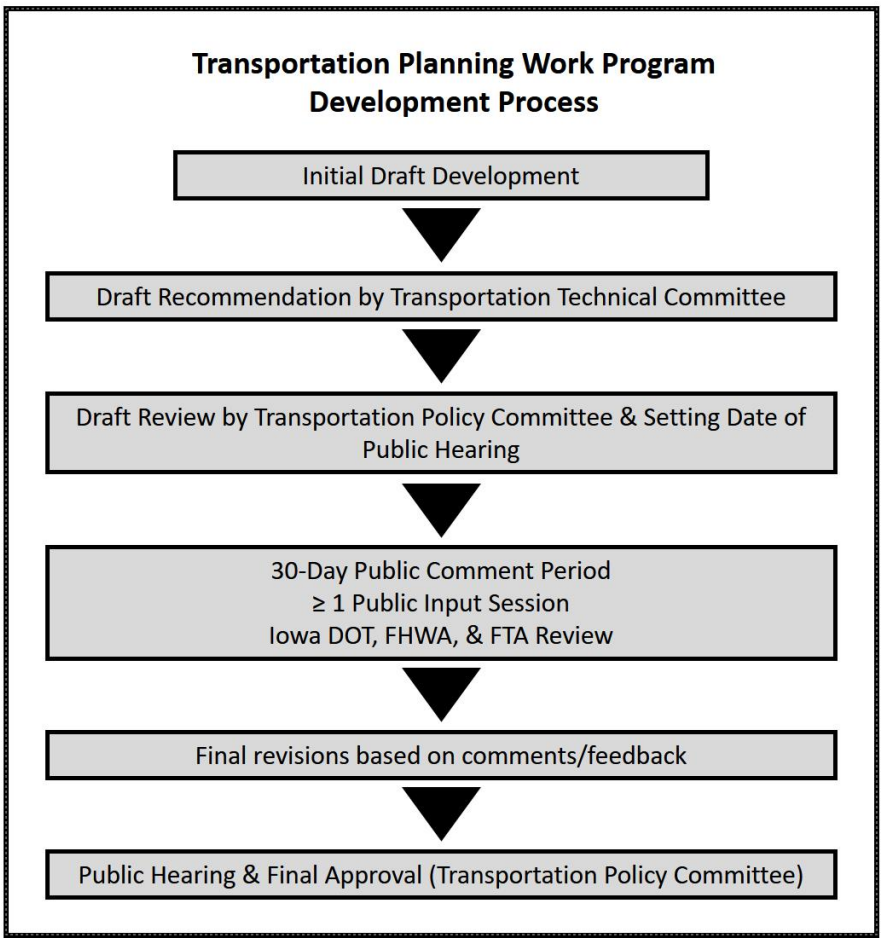


Figure 5: Transportation Planning Work Program Development Process

5.5 Passenger Transportation Plan (PTP)

The primary purpose of the Passenger Transportation Plan (PTP) is to promote joint, coordinated passenger transportation planning programs that further the development of the local and regional transportation systems. It provides key community decision makers with the knowledge of how individuals are currently being transported throughout Ames, the additional transportation needs and service requests identified, and recommended strategies or projects to overcome these needs.

A new PTP is developed every five (5) years, at a minimum, with updates as needed. Specifically, Enhanced Mobility for Seniors and Individuals with Disabilities projects or strategies need to be identified in the PTP before a project can be included in the AAMPO's TIP, which is required to obtain grant funding. The development process (shown in Figure 6) includes coordination with and review by the Transportation Collaboration (TC) of Story County, which functions as the AAMPO's Transportation Advisory Group (TAG). This process also includes reviews by both the TTC and TPC, a 30-day public comment period, and a public hearing. Information on the Transportation Planning Work Program is always available on the MPO website at: https://www.cityofames.org/government/aampo/passenger-transportation-plan. Additionally, the TAG group is required to have at least two meetings every fiscal year with meeting minutes submitted to the Iowa DOT annually by July 31st.

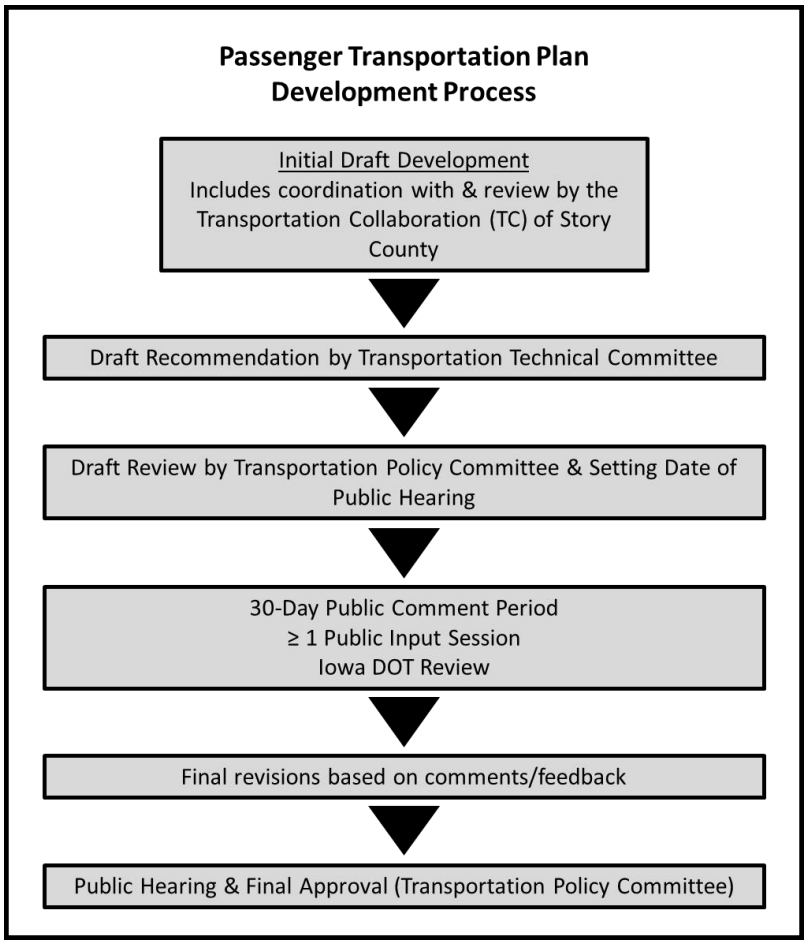


Figure 6: Passenger Transportation Plan Development Process

5.6 Amendments

While each of the core planning documents are updated under the respective time cycles, they can be amended in between updates when the need arises. One example of an amendment being required would be if a project's programmed budget or timeline needs to be modified in the current TIP. Amendments are also subject to public review requirements and procedures.

The AAMPO requires that before any core planning document can be amended, the amendment must be reviewed by the Transportation Technical Committee (TTC) and the Transportation Policy Committee (TPC). Additionally, amendments to the PTP need to be reviewed by the Transportation Collaboration (TC) of Story County. A minimum of a 15-day public comment period (45 days for the PPP) must also occur prior to an amendment to any core planning document. A public hearing and final approval of the amendment must then occur at a TPC meeting.

6 - Underserved Populations

6.1 Overview

The Ames Area MPO is committed to providing planning services across the Ames region that benefit all members of the public regardless of race, color, national origin, age, gender, income, or disability. To meet this commitment, the AAMPO follows the obligations outlined for Iowa MPOs in the state and federal regulations stated in Section 2 of this document.

6.2 Accommodations

The MPO ensures that its various meetings are held at convenient and accessible locations that are compliant with the Americans with Disabilities Act. Most MPO meetings are held at Ames City Hall, which is easily accessible via Transit as there is a CyRide bus stop on the south side of the building. There are also bike racks located at Ames City Hall. The MPO website is also automatically translated into over 90 different languages. The Ames Area MPO participates in and coordinates with the Story County Transportation Collaboration (conducted under the leadership of the United Way of Story County), which includes representatives from groups and organizations that share an interest in reducing transportation barriers.

During the AAMPO's MTP updates, Environmental Justice (EJ) populations, including minority populations and low-income populations are identified in the MPO's region. Projects which are identified in the MTP are evaluated to see if they disproportionately adversely affect minority and low-income populations. The MPO also considers the project's beneficial and/or adverse impacts on minority and low-income populations when developing, evaluating, and prioritizing projects in the MTP.

The AAMPO develops and maintains a separate Limited-English Proficiency (LEP) Plan *(insert link to this plan here when ready)*. This plan helps ensure that individuals with limited English proficiency have access to the MPO's various transportation documents and planning processes. Within this plan, areas within the Ames region with limited English proficiency, as well as other disadvantages groups, are identified. As recommended by the U.S. DOT, the LEP Plan follows the four-factor analysis process. Those four factors are:

1. The number of proportion of persons with limited English proficiency who are eligible to be served or likely to be encountered by MPO services and programs.
2. The frequency with which persons with limited English proficiency come into contact with MPO services and programs.
3. The nature and importance of the MPO's services and programs in people's lives.
4. The resources available to the MPO for outreach to persons with limited English proficiency, as well as the costs associated with the outreach.

Both CyRide and the City of Ames, which staff the Ames Area MPO, also maintain their own respective LEP Plans. CyRide also maintains its own FTA Title VI Program.

6.3 Complaint Procedures

Any person wishing to file a formal discrimination complaint may do so by completing the Title VI Complain form. This form can be accessed online on the main page of the AAMPO website or by contacting the MPO. More information on the complaint form and process can be found on the website. This complaint form should be returned to the MPO's current Title VI Civil Rights Coordinator, who's contact information is identified on both the form and online.

Appendix A – List of Acronyms

Acronym	Definition
AAMPO	Ames Area Metropolitan Planning Organization
CIRTPA	Central Iowa Regional Transportation Planning Alliance
DMAMPO	Des Moines Area Metropolitan Planning Organization
DOT	Department of Transportation
EJ	Environmental Justice
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
ISU	Iowa State University
ITS	Intelligent Transportation System
LEP	Limited English Proficiency
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
PPP	Public Participation Plan
PTP	Passenger Transportation Plan
RPA	Regional Planning Affiliation
STIP	Statewide Transportation Improvement Program
TAG	Transportation Advisory Group
TC	Transportation Collaboration
TIP	Transportation Improvement Program
TPC	Transportation Policy Committee
TPWP	Transportation Planning Work Program
TTC	Transportation Technical Committee

Appendix B – List of MPO Stakeholders & Public Groups

The Ames Area MPO communicates with a wide variety of stakeholders so that feedback throughout the MPO's various planning processes is comprehensive and properly reflects community values. The following stakeholders are identified as primary targets for key messages and communications on MPO planning activities and planning document updates.

1. **Local, State, & Federal Government Agencies**
    - Ames Transit Agency (CyRide)
    - Boone County
    - City of Ames
    - City of Gilbert
    - Federal Highway Administration (FHWA)
    - Federal Transit Administration (FTA)
    - Iowa Department of Transportation (DOT)
    - Iowa State University (ISU)
    - Story County

Note: The Ames Area MPO maintains agreements with the Iowa DOT and CyRide. The Iowa DOT and the AAMPO update their joint planning agreement annually as a part of the TPWP development process. CyRide and the AAMPO typically update their cooperative agreement every 3 years.

2. **Local & Regional Transportation Groups & Agencies**
    - Ames Area Running Club
    - Ames Bicycle Coalition
    - Ames Kidical Mass
    - Ames Velo
    - Central Iowa Bicycle-Pedestrian Roundtable
    - Central Iowa Regional Transportation Planning Alliance (CIRTPA)
    - Des Moines Area MPO (DMAMPO)
    - Iowa Bicycle Coalition

3. **Local, Community, & Development Groups/Organizations**
    - Ames Chamber of Commerce
    - Ames Convention and Visitors Bureau
    - Ames Economic Development Commission
    - Ames Historical Society
    - Ames Home Builders Association
    - Ames School District
    - Campustown Action Association

- First Responders (Police, Fire, EMS)
- Gilbert School District
- Hospitals
- Iowa State University Student Government
- Local Developers
- Main Street Cultural District
- Neighborhood Associations & Groups

4. **Advocacy Groups for disadvantaged, minority groups, and limited English-speaking individuals**
   - Story County Transportation Collaboration (United Way of Story County)
   - Engaging International Spouses (EIS) – YWCA Ames
   - Human Service Organizations (previous Story County Human Service Council, no longer formal group)
   - International Students & Scholars (ISS)
   - Intensive English & Orientation Program