**Greenfield Engineering & Planning**
10 South State Street
Greenfield, IN 46140
Phone: (317) 477-4320
Fax: (317) 477-4321

November 12, 2024

Board of Public Works and Safety
10 S. State Street
Greenfield, IN 46140

Re: Broadway and Park Signal HSIP Applications
Agreement with VS Engineering, Inc.

Dear Members,
The intersection of Broadway and Park has had 9 serious accidents since 2022. The Federal Highway Administration has a Highway Safety Improvement Program (HSIP) that provides 90% funding to safety related projects such as this.

With the assistance of VS Engineering, Staff was able to submit three HSIP grant applications for this intersection on short notice on October 11, 2024. The related projects had to be split into three components: 1) accessible pedestrian signal (APS) pushbuttons; 2) curb ramps; and 3) traffic signal. The total project cost is estimated to be $614,000 and the City's $61,400 commitment would be found in the 2025 Street Department budget.

A portion of the submitted information for the three HSIP grants are attached.

The Engineering Department professional services fund will be used to pay for this $10,000 time and materials contract.

**Suggested motion to authorize VS Engineering, Inc. to help Staff prepare and submit 2024 HSIP applications for intersection improvements at Broadway and Park.**

Glen E. Morrow, PE
City Engineer

October 8, 2024

Mr. Glen Morrow, PE
City Engineer
City of Greenfield
10 South State Street
Greenfield, IN 46140

Re: Broadway and Park Signal HSIP Application
Contract Letter with Standard Terms & Conditions

Dear Mr. Morrow:

VS Engineering, Inc. (VS) appreciates the opportunity to submit the following fee and expense schedule for professional services through completion of HSIP application of project for 2024 call.

Scope of Services

- Analyze traffic data provided by City.
- Analyze crash data provided by City.
- Develop cost estimate for implementing intersection safety solutions.
- Assist City in HSIP application.
- Contract Administration.

Compensation – City of Greenfield agrees to pay VS on a time and materials basis, per the Fee Schedule, for design and contract administration services, an amount not to exceed $10,000.

No more than one invoice per month shall be submitted and shall be based on actual hours worked and direct expenses incurred. The complete rate table is attached. Expenses will be billed at Cost plus 10%. Outside Pass-Through Services will be billed at Cost plus 15%.

This Fee Schedule shall be effective upon your approval per the date signed. The Fee Schedule shall apply to all time through 2024 and shall adjust annually to the current year fee schedule at the beginning of the next year.

We appreciate the opportunity and look forward to serving the City of Greenfield. Please contact us if you should have any questions or require additional information.

Respectfully,

VS Engineering, Inc.

Christopher L. Waidner, PE
Indiana Transportation Director

Enclosure – Terms & Conditions

**Contract Approval**
The below acknowledges and approves of the proposed scope of services, associated fees, and standard terms and conditions.

Signature: _____

Name: _____ Date: _____

Title: _____

**1.1. Compensation for Services.** VS Engineering, Inc. (VS) will submit monthly invoices for partial completion of services. Payment from Client will be due within 30 days of VS's invoice. VS will stop work if account balances become 90 days overdue. Invoices not paid within 120 days will be referred for collection and Client will be responsible for all expenses incurred by VS in the collection, including attorney fees.

**1.2. Services Outside Scope of Agreement.** Services not set forth or listed in this Agreement are specifically excluded from the scope of services. If circumstances or conditions that were not originally contemplated by or known to VS are revealed, to the extent they affect the scope of services, VS may call for renegotiation of appropriate portions of this Agreement. VS will provide additional services upon written approval from Client or upon verbal approval from Client followed by a confirmation letter from VS. These additional services will be outside the scope of this Agreement and will be billed to Client at VS's standard hourly rates plus expenses.

**1.3. Standard Hourly Rates.** Unless specifically noted in the written scope, VS shall use the current year standard hourly rates and expenses for all hourly work. The current year shall be the year in which the work is being completed. Any work completed as an Expert Witness shall be done at a rate 2.0 times the standard hourly rates.

**1.4. Representation and Opinions.** VS represents that all Services provided by its members, employees, agents and representatives are performed in a professional manner in accordance with sound consulting and engineering practices and procedures.

**1.5. Opinions of Probable Cost.** In providing opinions of probable cost, Client understands VS has no control over the cost or availability of labor, equipment, materials, or market conditions. VS's opinions of probable cost are made on the basis of professional judgment and experience. VS makes no warranty, expressed or implied that the costs will not vary from the opinion of probable cost.

**1.6. Access.** Client shall arrange for access to and shall make all necessary provisions for VS to enter upon public and private property as required by VS to perform the Services required under this Agreement. Although VS will exercise reasonable care in performing its Services, Client understands that performing some services may unavoidably cause minor disturbance to the Site, the correction of which is not part of this Agreement.

**1.7. Limited Liability.** VS shall have the first and primary right to remedy any errors, omissions or defective workmanship. VS shall not be liable for any incidental, consequential, indirect or special damages, or for any loss of profits or business interruptions caused or alleged to have been caused, by the performance or nonperformance of Services. Client agrees that Client's sole remedy against VS is limited to a refund of payments made by Client for said Services, less expenses paid to subcontractors or to third parties. VS is not responsible for errors which result from faulty or incomplete information supplied by Client. Client also agrees to not seek damages in excess of the contractually agreed upon limitations directly or indirectly through suits by or against other parties. Client further agrees that Client shall bring no claim against VS or its subcontractors no later than one year after completion of Services.

**1.8. Indemnification.** VS agrees to indemnify and hold harmless Client and all of its officers, directors and employees against claims, losses, penalties, fines, forfeitures, amounts paid in settlement, judgments, (including reasonable attorneys' fees) which result from any act or omission constituting gross negligence, willful misconduct or breach of fiduciary duty by any manager, agent or employee of VS in connection with VS's performance under this Agreement. Client agrees to indemnify and hold harmless VS and all of its managers, employees, agents, and other representatives ("Indemnitee") against costs, losses, liabilities, expenses (including reasonable attorneys' fees), and amounts paid in settlement actually incurred in connection with third party claims against any Indemnitee (collectively, "Losses") which result from any act or omission constituting negligence, misconduct, or breach of fiduciary duty by an officer, director or employee of Client in connection with this Agreement, unless such Losses are covered by insurance, in which event VS shall be indemnified only to the extent of any uninsured Losses. It is intended by the parties of this agreement that VS's services in connection with the project shall not subject VS's individual employees, officers, or directors to any personal legal

exposure for the risks associated with this project. Therefore, and not withstanding anything to the contrary contained herein, Client agrees that as Client's sole and exclusive remedy, any claim, demand or suit shall be directed and/or asserted only against VS, an Indiana corporation, and not against any of VS's individual employees, officers or directors.

1.9. **Force Majeure.** Neither party shall be liable to the other for any costs or damages due to causes beyond its control, expressly including weather conditions. Extensions of the performance schedule (if any) shall be deemed to be automatically granted in the case of delays beyond the control of VS.

1.10. **Instruments of Service.** All plans, drawings, surveys, prints, software, programs, data, specifications, photographs (including aerial) and other related items and documents prepared or furnished by VS pursuant to this Agreement are instruments of service in respect to this Project, and VS shall retain the ownership and property interests therein. Such documents are not intended or represented to be suitable for use by Client or others on extensions of this Project, on any other project, or for completions of this Project should this Agreement be terminated, nor may such documents be so reused without the express written consent of VS. Any reuse or modification of such documents without the consent of VS will be at Client's sole risk and without liability to VS, and Client shall indemnify and hold VS harmless from all claims, damages, losses and expenses, including attorneys' fees, arising out of or resulting therefrom.

1.11. **Governing Law; Choice of Forum.** This Agreement shall be governed by and construed in accordance with the laws of the State of Indiana. At VS's election, Client hereby submits to the exclusive jurisdiction and venue of any court (federal, state or local) having situs within the County of Marion, State of Indiana, expressly waives personal service of process and consents to service by certified mail, postage prepaid, directed to the last known address of Client. Client hereby waives any objection to improper venue, forum non conveniens and trial by jury.

1.12. **Client Disclosure and Lawfulness.** Client agrees to disclose to VS all pertinent information relative to the project including surveys, data, instructions, past reports and/or correspondence. VS may use such information in performing its services and is entitled to rely upon the accuracy and completeness thereof.

1.13. **Construction Observation.** If VS is not contracted for Construction Observation services associated with design services, it is understood and agreed that such services will be provided for by Client. Client assumes all responsibility for interpretation of the Contract Documents and for Construction Observation and Client waives any claims against VS that may be in any way connected thereto.

1.14. **Termination.** This Agreement may be terminated by either party upon 14 days written notice. Client shall nevertheless be responsible for all outstanding balances, including accounts receivable and work in process to the date of termination.

1.15. **Assignment.** This Agreement is binding upon and inures to the benefit of the respective parties hereto, their legal representatives, successors, and assigns. Neither VS nor Client may assign, sublet, or transfer its interests in this Agreement without first obtaining the written consent of the other.

1.16. **Entire Agreement.** The terms and conditions set forth herein constitute the entire understanding of the parties relating to the provision of Services as set forth in this Agreement.

1.17. **Authorization.** All signatories represent they are duly authorized to execute this Agreement.

This agreement represents the entire understanding of parties in respect to projects and can only be modified in writing signed by both parties. Please advise VS immediately in writing if any terms of this agreement need to be altered.

# VS Engineering, Inc.

## 2024 CY Standard Hourly Rates

| Employee Classification | Billing Rate 2024 CY |
|---|---|
| CADD Technician I | $69.00 |
| CADD Technician II | $103.00 |
| CADD Technician III | $150.00 |
| Engineer I | $107.00 |
| Engineer II | $136.00 |
| Engineer III | $205.00 |
| Project Supervisor I | $119.00 |
| Project Supervisor I - O.T. | $138.00 |
| Project Supervisor II | $129.00 |
| Project Supervisor II - O.T. | $150.00 |
| Project Inspector I | $96.00 |
| Project Inspector I - O.T. | $111.00 |
| Project Inspector II | $107.00 |
| Project Inspector II - O.T. | $125.00 |
| Project Manager I | $190.00 |
| Project Manager II | $266.00 |
| Project Scientist I | $96.00 |
| Project Scientist II | $114.00 |
| Project Surveyor I | $143.00 |
| Project Surveyor II | $198.00 |
| Right-of-Way Technician I | $75.00 |
| Right-of-Way Technician II | $126.00 |
| Survey Party Chief | $132.00 |
| Survey Technician I | $94.00 |
| Survey Technician II | $115.00 |
| Utility Coordinator | $109.00 |

V#20240225

Please Note: Rates are for the Current Calendar Year and shall Escalate Annually

VS ENGINEERING
Civil • Structural • Transportation • Environmental

CALCULATED BY: ABM
DATE: 10-07-2024
SHEET NO. 1 OF 1

# HSIP PROJECT COST SUMMARY

| CONSTRUCTION COST | | | |
|---|---|---|---|
| Curb Ramps | Traffic Signal | APS Pushbuttons | **Total** |
| $107,549.11 | $253,105.55 | $77,345.34 | **$438,000.00** |

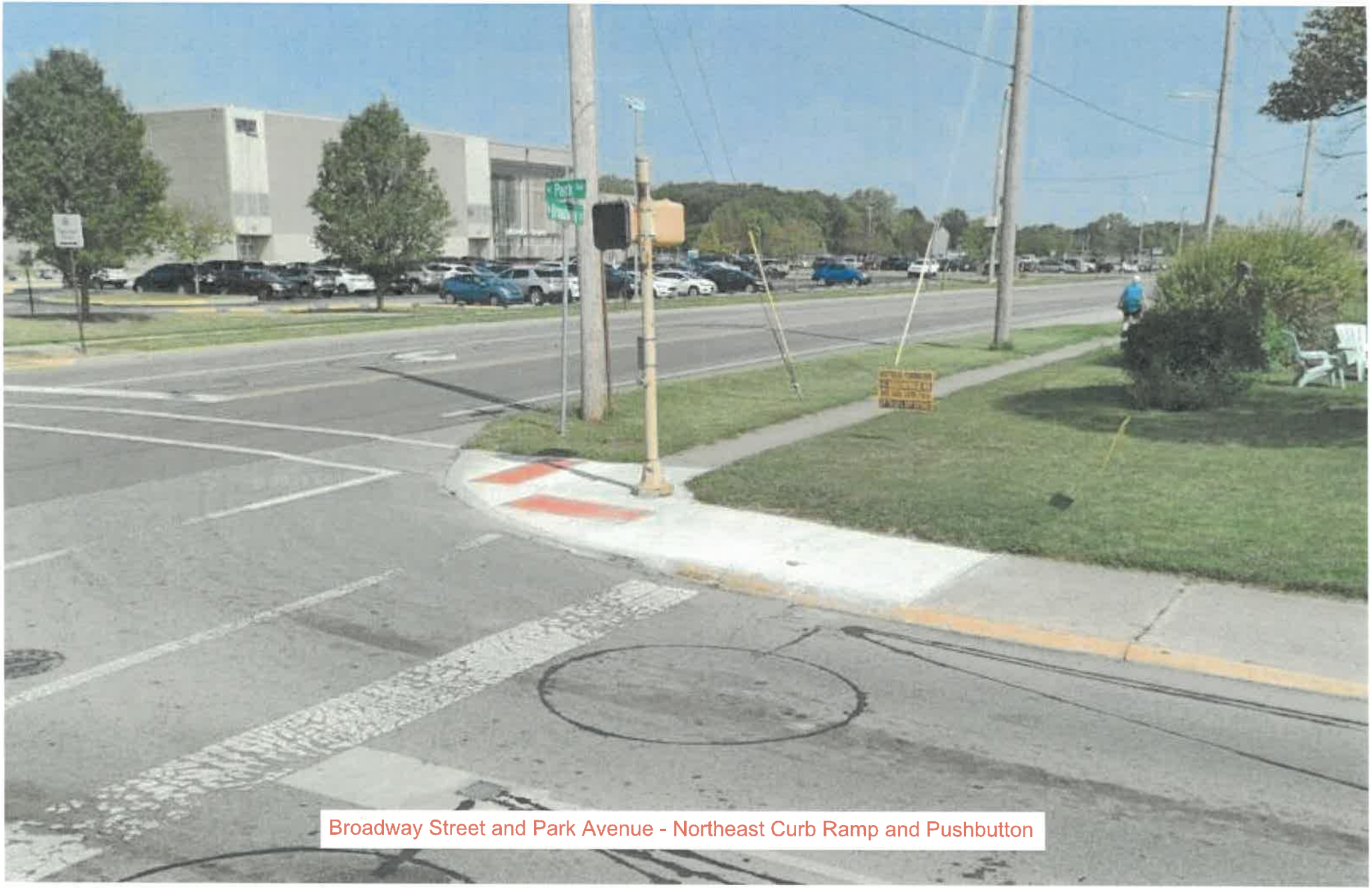
| PRELIMINARY ENGINEERING COST | | | |
|---|---|---|---|
| Curb Ramps | Traffic Signal | APS Pushbuttons | **Total** |
| $35,000.00 | $50,000.00 | $25,000.00 | **$110,000.00** |

| CONSTRUCTION INSPECTION COST | | | |
|---|---|---|---|
| Curb Ramps | Traffic Signal | APS Pushbuttons | **Total** |
| $16,300.00 | $38,000.00 | $11,700.00 | **$66,000.00** |

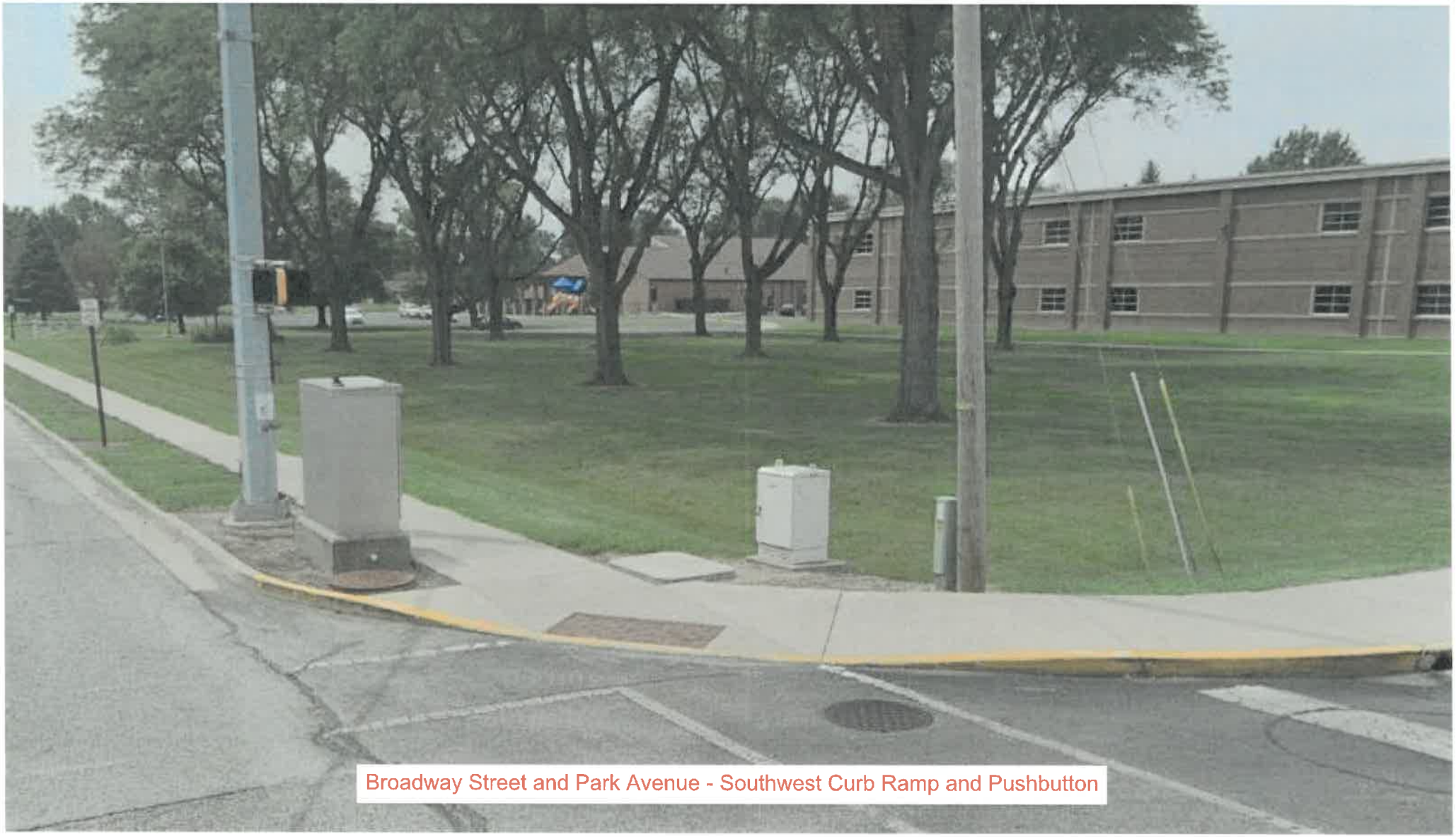
| TOTAL PROJECT COST | | | |
|---|---|---|---|
| Construction Cost | Preliminary Engineering | Construction Inspection | **Total** |
| $438,000.00 | $110,000.00 | $66,000.00 | **$614,000.00** |

| TOTAL FINANCIAL COMMITMENT FROM CITY OF GREENFIELD | **$61,400** |
|---|---|

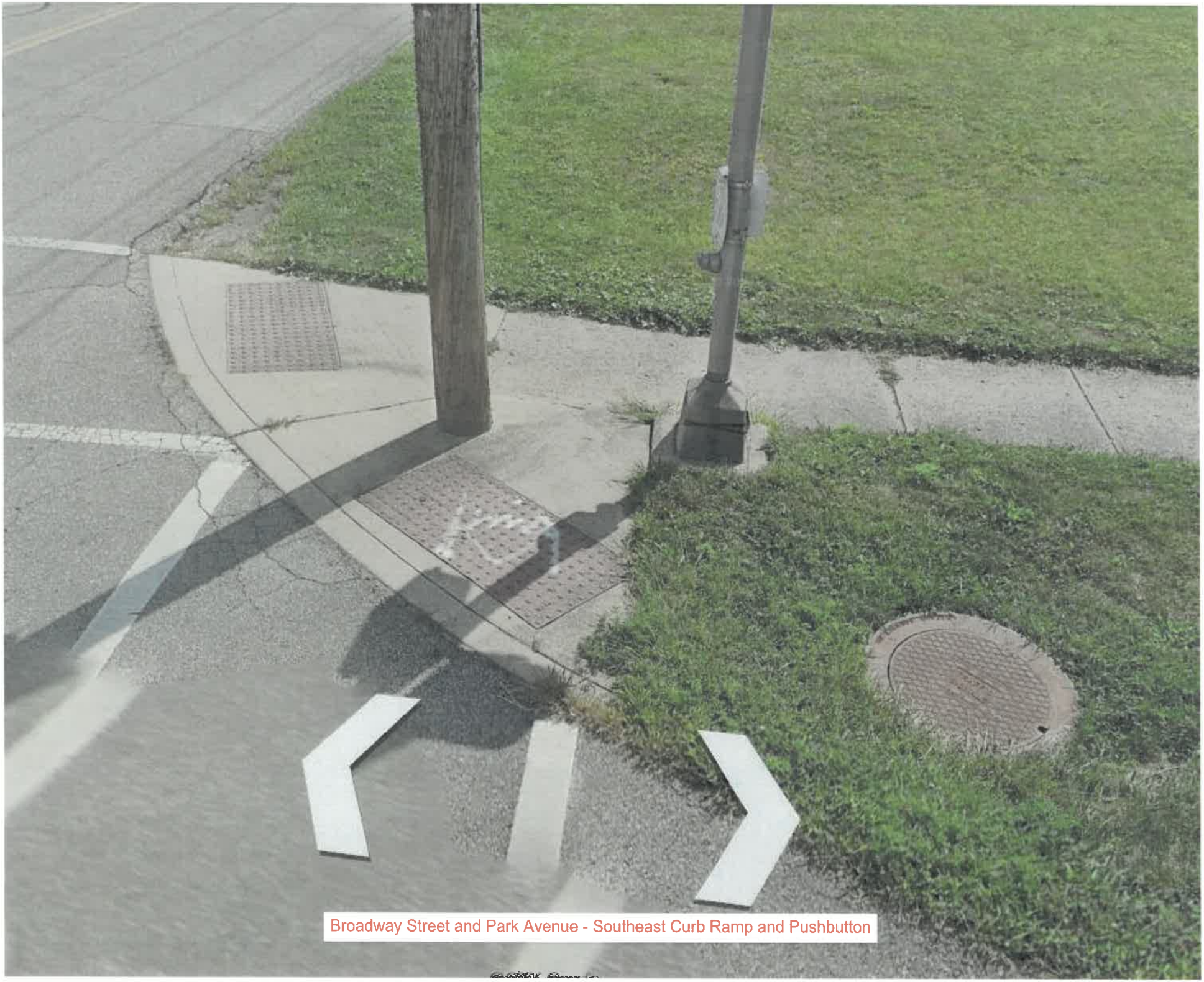

Broadway Street and Park Avenue - Northwest Curb Ramp and Pushbutton




Broadway Street and Park Avenue - Northeast Curb Ramp and Pushbutton



Broadway Street and Park Avenue - Southwest Curb Ramp and Pushbutton



Broadway Street and Park Avenue - Southeast Curb Ramp and Pushbutton

Broadway Street and Park Avenue - South Approach Looking North


Broadway Street and Park Avenue - East Approach Looking West

Broadway Street and Park Avenue - North Approach Looking South

VS ENGINEERING
Civil • Structural • Transportation • Environmental

CALCULATED BY: ABM
DATE: 10-07-2024
SHEET NO. 1 OF 1

# HSIP PROJECT COST SUMMARY

| CONSTRUCTION COST | | | |
|---|---|---|---|
| Curb Ramps | Traffic Signal | APS Pushbuttons | **Total** |
| $107,549.11 | $253,105.55 | $77,345.34 | **$438,000.00** |

| PRELIMINARY ENGINEERING COST | | | |
|---|---|---|---|
| Curb Ramps | Traffic Signal | APS Pushbuttons | **Total** |
| $35,000.00 | $50,000.00 | $25,000.00 | **$110,000.00** |

| CONSTRUCTION INSPECTION COST | | | |
|---|---|---|---|
| Curb Ramps | Traffic Signal | APS Pushbuttons | **Total** |
| $16,300.00 | $38,000.00 | $11,700.00 | **$66,000.00** |

| TOTAL PROJECT COST | | | |
|---|---|---|---|
| Construction Cost | Preliminary Engineering | Construction Inspection | **Total** |
| $438,000.00 | $110,000.00 | $66,000.00 | **$614,000.00** |

| TOTAL FINANCIAL COMMITMENT FROM CITY OF GREENFIELD | **$61,400** |
|---|---|

VS ENGINEERING
Civil • Structural • Transportation • Environmental

CALCULATED BY: ABM
DATE: 10-07-2024
SHEET NO. 1 OF 1

| BROADWAY STREET AND PARK AVENUE | | | | | |
|---|---|---|---|---|---|
| SLNO. | ITEM / DESCRIPTION | QUANTITY | UNIT | COST | TOTAL |
| 1 | MOBILIZATION AND DEMOBILIZATION | 1 | LSUM | $2,250.00 | $2,250.00 |
| 2 | CONSTRUCTION ENGINEERING | 1 | LSUM | $2,250.00 | $2,250.00 |
| 3 | CLEARING RIGHT OF WAY | 1 | LSUM | $500.00 | $500.00 |
| 4 | SIGNAL POLE FOUNDATION, REMOVE | 4 | EACH | $1,250.00 | $5,000.00 |
| 5 | SIGNAL POLE, REMOVE | 4 | EACH | $1,400.00 | $5,600.00 |
| 6 | SIGNAL POLE, PEDESTAL, 4FT | 4 | EACH | $1,250.00 | $5,000.00 |
| 7 | SIGNAL POLE FOUNDATION, 24 IN. X 24 IN. X 36 IN. | 4 | EACH | $2,200.00 | $8,800.00 |
| 8 | PEDESTRIAN SIGNAL HEAD, COUNTDOWN, 18 IN. | 8 | EACH | $1,100.00 | $8,800.00 |
| 9 | PEDESTRIAN PUSH BUTTON, APS | 8 | EACH | $1,200.00 | $9,600.00 |
| 10 | CONDUIT, HDPE, 2 IN. SCHEDULE 80 | 218 | LFT | $28.00 | $6,090.00 |
| 11 | SIGNAL CABLE, CONTROL, COPPER, 5C/14 GAUGE | 146 | LFT | $4.75 | $694.69 |
| 12 | MAINTAINING TRAFFIC | 1 | LSUM | $3,600.00 | $3,600.00 |
| | | | | | |
| | | | | **TOTAL ITEMIZED COST ESTIMATE (FY 2024) =** | **$58,184.69** |
| | | | | **20% CONTINGENCY =** | **$11,636.94** |
| | | | | **TOTAL COST ESTIMATE WITH CONTINGENCY (FY 2024) =** | **$69,821.63** |
| | | | | **INFLATION RATE =** | **5.25%** |
| | | | | **TOTAL COST ESTIMATE (FY 2026) =** | **$77,345.34** |

APS Push Buttons

For requests after May 1, 2024

Print form

# Highway Safety Improvement Program
# Low Cost Systemic LPA Project Eligibility Request

*~Print and attach to project application~*

**SPONSOR**

| | | | |
|---|---|---|---|
| Date | 10/11/24 | Submited by | City of Greenfield |
| Local Public Agency | City of Greenfield | | |
| Official Signatory | Glen Morrow | | |
| Office Title | City Engineer | | |
| Project Contact | Glen Morrow | | |
| Telephone | 317-325-1322 | Email | gmorrow@greenfieldin.org |

**PROJECT**

| | | | |
|---|---|---|---|
| Request | New Project | Des No. of existing project | |
| Road Name | Broadway Street and Park Avenue | | |
| Improvement Type | 7. Install pedestrian push button/activated Countdown And Audible (APS) Pedestrian signal heads and controllers at traffic signals. | | |

Estimated total cost: $77,345.34

**LOCATION DESCRIPTION**

Include start and end points of any corridor(s). Include other location information as needed such as feet from nearest cross street. Also list relevant County(s) and City/town(s). For numerous locations, attach project map.

The location is at the intersection of Broadway Street and Park Avenue in Greenfield, Hancock County. The intersection is located approximately 0.5 miles north of US40.

**A note regarding low cost systemic safety countermeasures.**

*For many Indiana communities, severe crashes are spread over hundreds of miles of rural roadway. Many severe crashes seem to occur "randomly"; a severe crash may occur at an isolated location one year and another may never occur there again. While the exact location of these crashes may be random, the type of roadway where they occur is not random. For instance, we know that head-on crashes are more likely on roadways which are narrow and do not have a marked centerline.*

*Systemic Safety is a method that is used to address these crashes based on the "risk" of their occurrence by selecting locations for treatment based on roadway characteristics with or without a relevant crash history at any one location. Systemic safety does not replace hot-spot safety improvement projects such as intersection improvements, but should be used as a complementary technique to improve safety.*

*Communities may select countermeasures from the above dropdown list and apply them to relevant locations within their jurisdiction based on either a history of crashes or on evidence that routes with similar characteristics have been found to have a higher instance of severe crashes of a specific type which would be addressed by the chosen countermeasure.*

*Justification of the countermeasure and route selections should be included on the next page. The applicant should explain how the locations where selected and why the chosen countermeasure will address the crash history or crash risk. The process that was used to evaluate the roadway network to determine which roadway characteristics increase the risk of a severe should be described.*

APS Push Buttons

## PROJECT PURPOSE AND NEED (required)

Provide a short description of the existing safety concerns and the safety improvements to be achieved.

The intersection of Broadway Street and Park Avenue is a 4-way signalized intersection. The west approach of the intersection is a drive entrance to Greenfield-Central High School. The existing APS and pushbuttons do not meet current ADA and INDOT standards. Because the intersection acts as a drive to Greenfield-Central High School, the intersection sees significantly more pedestrian traffic than an intersection of comparable vehicle traffic. The existing APS and pushbuttons are not suitable for the amount of pedestrian traffic and cannot accommodate any disabled students attending Greenfield-Central High School. The proposed improvement will upgrade the APS and pushbuttons to current standards.

## SPECIAL RULE NARRATIVE (required)

Provide a detailed narrative explaining how the location/project meets the following:

1. A higher than normal frequency and/or rate of fatal and incapacitating crashes (severe crashes); or
2. a higher than normal risk of fatal and incapacitating crashes based on geometric characteristics; and
3. how the proposed project will address these issues.

This intersection presents a higher than normal risk to pedestrians because of the location and characteristics of the existing pedestrian signals and pushbuttons. The northwest pedestrian signal has a pushbutton to cross Broadway Street not in line with any sidewalk and would not be accessible to disabled pedestrians. The northeast pedestrian signal is located in the middle of the curb ramp and presents as an obstruction to pedestrians trying to cross either street. The southeast pedestrian signal will need to be moved to upgrade the curb ramp, which is not ADA compliant. The southwest pedestrian signal is located on the southwest signal strain pole, which is too far from the bottom of the ramp and is not ADA compliant. This corner will need it's own pedestal for the pedestrian signal.

The proposed improvements will help to alleviate these pedestrian safety concerns by upgrading the pedestrian signals to be ADA and INDOT compliant. The curb ramps are planned to be upgraded as well, which would require the location and equipment of the pedestrian signals to be upgraded as well.

APS Push Buttons

VS ENGINEERING
Civil • Structural • Transportation • Environmental

CALCULATED BY: ABM
DATE: 10-07-2024
SHEET NO. 1 OF 1

| BROADWAY STREET AND PARK AVENUE | | | | | |
|---|---|---|---|---|---|
| SLNO. | ITEM / DESCRIPTION | QUANTITY | UNIT | COST | TOTAL |
| 1 | MOBILIZATION AND DEMOBILIZATION | 1 | LSUM | $3,300.00 | $3,300.00 |
| 2 | CONSTRUCTION ENGINEERING | 1 | LSUM | $3,300.00 | $3,300.00 |
| 3 | CLEARING RIGHT OF WAY | 1 | LSUM | $700.00 | $700.00 |
| 4 | CURB CONCRETE, REMOVE | 200 | LFT | $50.00 | $10,000.00 |
| 5 | SIDEWALK CONCRETE, REMOVE | 64 | SYS | $70.00 | $4,480.00 |
| 6 | SUBGRADE TREATMENT TYPE IC | 44 | SYS | $300.00 | $13,200.00 |
| 7 | HMA PATCHING, FULL DEPTH, TYPE B | 39 | TON | $250.00 | $9,750.00 |
| 8 | SIDEWALK, CONCRETE | 32 | SYS | $125.00 | $4,000.00 |
| 9 | CURB RAMP, CONCRETE | 32 | SYS | $230.00 | $7,360.00 |
| 10 | DETECTABLE WARNING SURFACES | 8 | SYS | $350.00 | $2,800.00 |
| 11 | CURB, CONCRETE | 200 | LFT | $85.00 | $17,000.00 |
| 12 | MAINTAINING TRAFFIC | 1 | LSUM | $5,016.12 | $5,016.12 |
| | | | | | |
| | | | | **TOTAL ITEMIZED COST ESTIMATE (FY 2024) =** | **$80,906.12** |
| | | | | **20% CONTINGENCY =** | **$16,181.22** |
| | | | | **TOTAL COST ESTIMATE WITH CONTINGENCY (FY 2024) =** | **$97,087.34** |
| | | | | **INFLATION RATE =** | **5.25%** |
| | | | | **TOTAL COST ESTIMATE (FY 2026) =** | **$107,549.11** |

CURB RAMPS

For requests after May 1, 2024

Print form

# Highway Safety Improvement Program
# Low Cost Systemic LPA Project Eligibility Request

*~Print and attach to project application~*

**SPONSOR**

| | | | |
|---|---|---|---|
| Date | 10/11/24 | Submited by | City of Greenfield |
| Local Public Agency | City of Greenfield | | |
| Official Signatory | Glen Morrow | | |
| Office Title | City Engineer | | |
| Project Contact | Glen Morrow | | |
| Telephone | 317-325-1322 | Email | gmorrow@greenfieldin.org |

**PROJECT**

| | | | |
|---|---|---|---|
| Request | New Project | Des No. of existing project | |
| Road Name | Broadway Street and Park Avenue | | |
| Improvement Type | 6. Install or upgrade pedestrian curb ramps and refuge areas at areas of high conflict between pedestrians and vehicular traffic. | | |

Estimated total cost: $107,549.11

**LOCATION DESCRIPTION**

Include start and end points of any corridor(s). Include other location information as needed such as feet from nearest cross street. Also list relevant County(s) and City/town(s). For numerous locations, attach project map.

The location is at the intersection of Broadway Street and Park Avenue in Greenfield, Hancock County. The intersection is located approximately 0.5 miles north of US40.

**A note regarding low cost systemic safety countermeasures.**

*For many Indiana communities, severe crashes are spread over hundreds of miles of rural roadway. Many severe crashes seem to occur "randomly"; a severe crash may occur at an isolated location one year and another may never occur there again. While the exact location of these crashes may be random, the type of roadway where they occur is not random. For instance, we know that head-on crashes are more likely on roadways which are narrow and do not have a marked centerline.*

*Systemic Safety is a method that is used to address these crashes based on the "risk" of their occurrence by selecting locations for treatment based on roadway characteristics with or without a relevant crash history at any one location. Systemic safety does not replace hot-spot safety improvement projects such as intersection improvements, but should be used as a complementary technique to improve safety.*

*Communities may select countermeasures from the above dropdown list and apply them to relevant locations within their jurisdiction based on either a history of crashes or on evidence that routes with similar characteristics have been found to have a higher instance of severe crashes of a specific type which would be addressed by the chosen countermeasure.*

*Justification of the countermeasure and route selections should be included on the next page. The applicant should explain how the locations where selected and why the chosen countermeasure will address the crash history or crash risk. The process that was used to evaluate the roadway network to determine which roadway characteristics increase the risk of a severe should be described.*

CURB RAMPS

## PROJECT PURPOSE AND NEED (required)

Provide a short description of the existing safety concerns and the safety improvements to be achieved.

The intersection of Broadway Street and Park Avenue is a 4-way signalized intersection. The west approach of the intersection is a drive entrance to Greenfield-Central High School. The existing curb ramps at this intersection are not ADA compliant and not up to current INDOT standards. Because the intersection acts as a drive to Greenfield-Central High School, the intersection sees significantly more pedestrian traffic than an intersection of comparable vehicle traffic. The existing curb ramps are not suitable for the amount of pedestrian traffic and cannot accommodate any disabled students attending Greenfield-Central High School. The proposed improvement will upgrade the curb ramps to be ADA compliant.

## SPECIAL RULE NARRATIVE (required)

Provide a detailed narrative explaining how the location/project meets the following:

1. A higher than normal frequency and/or rate of fatal and incapacitating crashes (severe crashes); or
2. a higher than normal risk of fatal and incapacitating crashes based on geometric characteristics; and
3. how the proposed project will address these issues.

This intersection presents a higher than normal risk to pedestrians because of the characteristics of the existing curb ramps. The northwest curb ramp does not have an ADA compliant detectable warning surface and does not have a proper clear/turning space at the bottom to allow pedestrians to both streets. The northeast curb ramp was recently upgraded in the past 2-3 years. However, it is still not ADA compliant due to the APS pole acting as an obstruction and not allowing 4' of space for wheelchairs to maneuver. The southeast curb ramp does not have ADA compliant detectable warning surfaces, a flat turning space for pedestrians to navigate both directions, and has a power pole in the middle of it, acting as an obstruction. The southwest curb ramp does not have an ADA compliant detectable warning surface and does not have a proper clear/turning space to allow pedestrians to cross both streets.

The proposed improvements will help to alleviate these pedestrian safety concerns by upgrading the curb ramps to current ADA and INDOT standards. The ramp configurations, widths, grades, cross slopes, and detectable warning surfaces will all be upgraded to maximize the accessibility for pedestrians.

CURB RAMPS

VS ENGINEERING
Civil • Structural • Transportation • Environmental

CALCULATED BY: ABM
DATE: 10-07-2024
SHEET NO. 1 OF 1

| BROADWAY STREET AND PARK AVENUE | | | | | |
|---|---|---|---|---|---|
| SLNO. | ITEM / DESCRIPTION | QUANTITY | UNIT | COST | TOTAL |
| 1 | MOBILIZATION AND DEMOBILIZATION | 1 | LSUM | $8,000.00 | $8,000.00 |
| 2 | CONSTRUCTION ENGINEERING | 1 | LSUM | $8,000.00 | $8,000.00 |
| 3 | CLEARING RIGHT OF WAY | 1 | LSUM | $1,700.00 | $1,700.00 |
| 4 | SIGNAL POLE FOUNDATION, REMOVE | 2 | EACH | $1,250.00 | $2,500.00 |
| 5 | SIGNAL POLE, REMOVE | 2 | EACH | $1,400.00 | $2,800.00 |
| 6 | TRAFFIC SIGNAL EQUIPMENT, REMOVE | 1 | EACH | $4,300.00 | $4,300.00 |
| 7 | SIGNAL CANTILEVER STRUCTURE, SINGLE ARM 20FT | 4 | EACH | $20,000.00 | $80,000.00 |
| 8 | SIGNAL POLE FOUNDATION, 36 IN. X 144 IN. | 4 | EACH | $5,250.00 | $21,000.00 |
| 9 | CONFLICT MONITOR CHANGEOUT | 1 | EACH | $2,500.00 | $2,500.00 |
| 10 | MISCELLANEOUS EQUIPMENT FOR TRAFFIC SIGNALS | 1 | LSUM | $3,000.00 | $3,000.00 |
| 11 | CONTROLLER, REWIRE | 1 | EACH | $1,250.00 | $1,250.00 |
| 12 | TRAFFIC SIGNAL HEAD, 3 SECTION, 12 IN. (RED, AMBER, GREEN) | 4 | EACH | $1,300.00 | $5,200.00 |
| 13 | TRAFFIC SIGNAL HEAD, 4 SECTION, 12 IN. (RED ARROW, AMBER ARROW, AMBER FLASHING ARROW, GREEN ARROW) | 4 | EACH | $1,550.00 | $6,200.00 |
| 14 | CONDUIT, HDPE, 2 IN. SCHEDULE 80 | 653 | LFT | $28.00 | $18,270.00 |
| 15 | SIGNAL CABLE, LOOP DETECTOR LEAD-IN, COPPER, 2C/16 GAUGE | 720 | LFT | $2.50 | $1,800.00 |
| 16 | HANDHOLE, SIGNAL | 4 | EACH | $2,100.00 | $8,400.00 |
| 17 | SIGNAL CABLE, CONTROL, COPPER, 3C/14 GAUGE | 50 | LFT | $4.50 | $225.00 |
| 18 | SIGNAL CABLE, CONTROL, COPPER, 5C/14 GAUGE | 439 | LFT | $4.75 | $2,084.06 |
| 19 | SIGNAL CABLE, CONTROL, COPPER, 7C/14 GAUGE | 485 | LFT | $5.00 | $2,425.00 |
| 20 | MAINTAINING TRAFFIC | 1 | LSUM | $10,750.00 | $10,750.00 |
| | | | | | |
| | | | | **TOTAL ITEMIZED COST ESTIMATE (FY 2024) =** | **$190,404.06** |
| | | | | **20% CONTINGENCY =** | **$38,080.81** |
| | | | | **TOTAL COST ESTIMATE WITH CONTINGENCY (FY 2024) =** | **$228,484.88** |
| | | | | **INFLATION RATE =** | **5.25%** |
| | | | | **TOTAL COST ESTIMATE (FY 2026) =** | **$253,105.55** |

TRAFFIC SIGNAL

For requests after May 1, 2024

Print form

# Highway Safety Improvement Program
# Low Cost Systemic LPA Project Eligibility Request

*~Print and attach to project application~*

**SPONSOR**

| | | | |
|---|---|---|---|
| Date | 10/11/24 | Submited by | City of Greenfield |
| Local Public Agency | City of Greenfield | | |
| Official Signatory | Glen Morrow | | |
| Office Title | City Engineer | | |
| Project Contact | Glen Morrow | | |
| Telephone | 317-325-1322 | Email | gmorrow@greenfieldin.org |

**PROJECT**

| | | | |
|---|---|---|---|
| Request | New Project | Des No. of existing project | |
| Road Name | Broadway Street and Park Avenue | | |
| Improvement Type | 9. Upgrade traffic signals to a minimum of one signal head per travel lane and install black backing plates with reflective border on all traffic s | | |

Estimated total cost: $253,105.55

**LOCATION DESCRIPTION**

Include start and end points of any corridor(s). Include other location information as needed such as feet from nearest cross street. Also list relevant County(s) and City/town(s). For numerous locations, attach project map.

The location is at the intersection of Broadway Street and Park Avenue in Greenfield, Hancock County. The intersection is located approximately 0.5 miles north of US40.

**A note regarding low cost systemic safety countermeasures.**

*For many Indiana communities, severe crashes are spread over hundreds of miles of rural roadway. Many severe crashes seem to occur "randomly"; a severe crash may occur at an isolated location one year and another may never occur there again. While the exact location of these crashes may be random, the type of roadway where they occur is not random. For instance, we know that head-on crashes are more likely on roadways which are narrow and do not have a marked centerline.*

*Systemic Safety is a method that is used to address these crashes based on the "risk" of their occurrence by selecting locations for treatment based on roadway characteristics with or without a relevant crash history at any one location. Systemic safety does not replace hot-spot safety improvement projects such as intersection improvements, but should be used as a complementary technique to improve safety.*

*Communities may select countermeasures from the above dropdown list and apply them to relevant locations within their jurisdiction based on either a history of crashes or on evidence that routes with similar characteristics have been found to have a higher instance of severe crashes of a specific type which would be addressed by the chosen countermeasure.*

*Justification of the countermeasure and route selections should be included on the next page. The applicant should explain how the locations where selected and why the chosen countermeasure will address the crash history or crash risk. The process that was used to evaluate the roadway network to determine which roadway characteristics increase the risk of a severe should be described.*

TRAFFIC SIGNAL

## PROJECT PURPOSE AND NEED (required)

Provide a short description of the existing safety concerns and the safety improvements to be achieved.

The intersection of Broadway Street and Park Avenue is a 4-way signalized intersection. The west approach of the intersection is a drive entrance to Greenfield-Central High School. The existing traffic signal is spanned diagonally on 2 signal poles. The Broadway Street approaches have 3-section and 5-section signal heads, while the Park Avenue and Greenfield-Central High School approaches only have 3-section heads. This means that the signal does not have a protected left turn signal phase for Park Avenue and Greenfield-Central High School. This presents a safety concern for drivers attempting to turn left from Park Avenue or Greenfield-Central High School. Additionally, the limited diagonal span causes the signal heads to be close to each other, limits the visibility of the signal heads and can confuse drivers because they see all signal heads in front of them. The proposed improvement will give each approach a signal pole and upgrade the signal heads to 4 and 3 sections signal heads on all approaches.

## SPECIAL RULE NARRATIVE (required)

Provide a detailed narrative explaining how the location/project meets the following:

1. A higher than normal frequency and/or rate of fatal and incapacitating crashes (severe crashes); or
2. a higher than normal risk of fatal and incapacitating crashes based on geometric characteristics; and
3. how the proposed project will address these issues.

This intersection presents a higher than normal risk of injury causing crashes due to the single signal span and lack of a protected left turn signal phase for drivers on Park Avenue and Greenfield-Central High School. The lack of a protected left turn for these approaches is exacerbated by high peak hour traffic during school drop-off and pickup. This leads to traffic congestion and safety concerns as the risk of right angle crashes is high. The single signal span also causes the signal heads to placed near to each other and limits the visibility to any single head.

The proposed improvements will help to alleviate these safety concerns by replacing the single signal span with a span for each approach, and replacing the existing signal heads with 3 and 4 section signal heads on all approaches. This will give better signal head visibility and allow for a protected left turn phase for the Park Avenue and Greenfield-Central High School approaches.

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