

Submitted by:  
Butler County Economic Development  
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## Butler County, Pennsylvania *Application Submission for:*

# Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants Program

*"Route 228 is the **gateway** to Butler County's future and, therefore, our number one priority. This Corridor is our access to the local, regional and national transportation network, trade and freight routes, rural opportunity, economic expansion, and education and medicine. It's also the way our regional neighbors enter Butler County. Unfortunately, 228's transportation infrastructure is being far-outpaced by economic and demographic growth in the municipalities along Route 228. BUILD is Butler's chance to get ahead of the Corridor's critical needs and invest efficiently in the modern infrastructure that our communities deserve."*

*Butler County Commissioners  
Leslie Osche, Kim Geyer and Kevin Boozel*

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# 1. PROJECT NARRATIVE

## 1.1 OVERVIEW

Butler County, Pennsylvania is applying for \$24.3 million from the Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grant Program for our County's most critical transportation infrastructure initiative – Gateway 228 (the Project). Route 228 is the County's primary link between several burgeoning economic activity centers – southern Butler County, the fastest growing community in the Commonwealth of Pennsylvania,<sup>1</sup> and Shell Chemicals' \$6 billion ethane cracker plant in neighboring Beaver County<sup>2</sup>. Additionally, the Corridor intersects with I-79 and I-76 connecting the region to the nation. Route 228 is the most critical connection between Butler County's rural and suburban residents and emerging regional employment opportunities. Unfortunately, the Corridor doesn't have sufficient capacity to safely and efficiently accommodate the influx of users resulting from southern Butler County's hot real estate and employment markets. That's why the County Commissioners have identified Gateway 228 as the number one, priority project for Butler County, Pennsylvania and are going all-in on a comprehensive local, state and federal funding strategy to accomplish it. (For demographic data and other facts about Butler County, please go to: <http://www2.co.butler.pa.us/planning/background/bg4.pdf>)

**MAP 1: Gateway 228 Project (highlighted in yellow)**



Part of that all-in strategy consisted of two meetings with the United States Department of Transportation (USDOT) including one with Secretary Elaine Chao to introduce Butler County and its importance as a gateway to the state's and region's transportation network. On August 30, 2017, Butler County Commissioners Leslie Osche and Kim Geyer, and Pennsylvania Secretary of Transportation Leslie Richards, met with Secretary Chao in Washington D.C. to learn about Federal programs applicable to improving infrastructure and sustaining mobility in counties like Butler. Secretary Chao conveyed some ideas and ways that the Administration's funding programs could help get significant large-scale projects "over the goal line." It was on the drive back from D.C. that Gateway 228 transpired – not only as a project commensurate with Secretary Chao's examples – but as a project that would unlock explosive economic development and growth unmatched anywhere in Pennsylvania. As a follow-up to the meeting with Secretary Chao, Commissioners Osche and Geyer, along with Commissioner Kevin Boozel, met on April 24, 2018 in Washington D.C. with several USDOT officials to discuss specifically the Gateway 228 Project. (The presentation to USDOT, Route 228 Beaver and Butler Counties: Partnering to Impact

<sup>1</sup> [https://www.pennlive.com/expo/news/errry-2018/06/4024408aab8457/these\\_are\\_pennsylvanias\\_fastest.html](https://www.pennlive.com/expo/news/errry-2018/06/4024408aab8457/these_are_pennsylvanias_fastest.html)

<sup>2</sup> <https://www.shell.us/about-us/projects-and-locations/pennsylvania-chemicals-project.html>

the Region's Infrastructure is at: <http://www2.co.butler.pa.us/planning/background/bg2.pdf>). The focus of that strategy session was on the importance of Route 228 as a critical connector between Butler and our neighbor to the west, Beaver County, and how to accommodate access between Butler's rural, economic and residential markets and Shell Chemicals ethane cracker plant, and its 6,000 construction jobs and 600 permanent jobs. At that point, Beaver County had already started implementation of their segment of Route 228 (Freedom Crider Road), a \$93.8 million three-part investment that supports the cracker plant and sets the stage for our Project. Bearing in mind all the Project's partnerships, momentum and accomplishments so far, Secretary Chao and the USDOT team provided us the insight we needed to determine the final approach for Gateway 228.

Gateway 228 is a \$270 million, multiyear investment in infrastructure upgrades to Route 228, which is part of the National Highway System (NHS) and classified as a principal arterial – community arterial – rural roadway. This 26.4-mile economic thread connects seven Butler County municipalities (Cranberry, Seven Fields, Mars, Adams, Middlesex, Clinton and Buffalo), Beaver County to the west and Armstrong County to the east. Already \$136.5 million has been invested in Gateway 228 with five of Route 228's 13 sections either completed or under construction. The \$104 million cost of the remaining eight sections, which are in various phases of preliminary design, right-of-way acquisition, or final design, will be funded through an assembly of county funds, state funding sources, BUILD, and other federal programs. Completion of Gateway 228 will result in a minimum four-lane highway throughout the Corridor including two through-lanes in each direction separated by a 16-foot median with turn lanes at designated locations, connecting access and service roads, and accommodations for safe pedestrian and bike movements.

**TABLE 1: Gateway 228 Costs and Status**

GATEWAY 228 PROJECT	PROJECT STATUS	PROJECT COST
1 - 989 to Powell	Preliminarily Design	\$3,040,000
2 - Powell to Haine School	Preliminarily Design	\$9,320,000
3 - Haine School to Commonwealth	Preliminarily Design	\$10,260,557
4 - Turnpike Bridge	ROW/Utilities	\$19,083,600
<b>5 - 19 to Freedom Interchange</b>	<b>Complete</b>	<b>\$5,153,200</b>
6- 228 UPMC	Final Design	\$9,710,000
7 - Mars RR Bridge West	Preliminarily Design	\$99,340,400
<b>8 - Pittsburgh St Intersection</b>	<b>Under Construction</b>	<b>\$11,320,700</b>
<b>9 - 228-Mars RR Bridge</b>	<b>Complete</b>	<b>\$20,388,400</b>
10 - Three Degree Road	Final Design	\$30,081,900
11 - Balls Bend	Preliminarily Design	\$33,513,100
<b>12 - Cox Corner</b>	<b>Under Construction</b>	<b>\$8,171,505</b>
<b>13 - Ekastown</b>	<b>Under Construction</b>	<b>\$10,216,000</b>
		<b>\$269,599,362</b>

Based on our consultations in Washington and internal work sessions with our team to determine Project priorities and congruency with BUILD, Butler County Commissioners selected two investment areas critical to completing Gateway 228 – 11) Balls Bend and 3) Haine School-Commonwealth – that have a combined Project cost of \$43,773,657. Balls Bend is a 1.6-mile geographically dangerous stretch of Route 228 through rural Middlesex Township that will be widened and realigned from just east of Three Degree Road to the Middlesex Township line at Route 8. The purpose of investing BUILD funds in Balls Bend is to improve roadway conditions, reduce crashes and fatalities, and accommodate current development, future growth and resultant traffic volumes. Haine School-Commonwealth is a  $\frac{3}{4}$ -mile, highly congested section of Route 228 in Cranberry Township that will be widened to accommodate

traffic demands between Shell Chemicals' ethane cracker plant in Beaver County and Cranberry Township, and accommodate economic activity. BUILD funds - \$15.8 million and \$8.5 million - will be invested respectively in Balls Bend and Haine School-Commonwealth. Please click on these links to see flyovers of the investment areas. <https://youtu.be/ibqLiCdJWLw>; [https://youtu.be/ephDJ\\_pmhU4](https://youtu.be/ephDJ_pmhU4); <https://youtu.be/hzgks9tgRoI>

**TABLE 2: BUILD Investment Areas**

BUILD INVESTMENT AREAS	PROJECT COST
3 - Haine School to Commonwealth	<b>\$10,260,557</b>
Engineering & Design	\$850,000
ROW Acquisition	\$670,000
Utilities	\$1,257,750
Construction	\$7,482,807
<b>11 - Balls Bend</b>	<b>\$33,513,100</b>
Engineering & Design	\$1,914,500
ROW acquisition	\$3,628,200
Utilities	\$570,100
Construction	\$27,400,300
<b>TOTALS</b>	<b>\$43,773,657</b>

BUILD's investment in Gateway 228 will undoubtedly result in a multitude of economic benefits and significant merit-based advantages. Supplemental to improving transportation infrastructure, which in some areas hasn't been upgraded in 25 years, construction of the Gateway 228 will result in more than 2,300 direct, permanent jobs and over \$84 million annually in local, state and federal taxes. Butler County already boasts nearly \$600 billion in visitor spending each year and, with the additional employee compensation of \$113+ million resulting from construction of the Project, even more spending will flood into the local and regional economies. Infrastructure improvements will increase efficient movement of goods for more than 11,600 businesses within a 3-mile buffer area that use Route 228 to ship more than \$27.5 billion worth of commodities each year. Most importantly however, construction of Gateway 228 will fix capacity, safety and access problems that have overwhelmed the Corridor since 2003 and achieve associated benefits like reducing fatalities. (Please see economic impact and freight movement data at: <http://www2.co.butler.pa.us/planning/economic/ec2.xlsx>; <http://www2.co.butler.pa.us/planning/economic/ec4.xlsx>

Results of the benefit cost analysis (BCA) presented in Section 1.9 on page 15 and as an Appendix to this application, also show benefits resulting directly from investments in the BUILD Project areas. Overall, our Project produces savings related travel time, safety, emissions, and operations. In fact, the BUILD Project shows a positive benefit-to-cost ratio and net benefits even after applying the 7 percent discount rate, (i.e. 1.9).

To ensure these advantages and the completion of Gateway 228, the Commissioners team designed a comprehensive financial strategy using an innovative local funding approach to leverage state and federal funding programs. On July 18, 2018, Butler County commissioners adopted the Pennsylvania's User Fee Program that authorizes counties to implement a \$5 local use fee for each vehicle registered within the County. For Butler County, this fee will produce over \$900,000 annually which will be used to leverage approximately \$9 million from Pennsylvania's Infrastructure Bank (PIB). Butler County also has access to additional new revenue through the County's Infrastructure Bank. On November 15, 2017, the County created the infrastructure bank, which is funded with revenue from PA ACT 13 Impact Fees (oil and gas). Financial commitments from Butler County and Pennsylvania will match the acquisition of BUILD. (Please see financial details in Section 3 Grant Funds, Sources & Uses of Funds on page 19.)

## 1.2 TRANSPORTATION CHALLENGES AND SOLUTIONS

Based on analysis of Gateway 228, and specifically Balls Bend and Haine School-Commonwealth, the Project's top 3 transportation challenges are: **capacity, safety and access**.

### CHALLENGES

In April 2017, Butler County completed a Mobility Plan that specifically examined transportation challenges throughout the County, including the Project area, and ways to mitigate those problems. The Plan inspected the roadway network using three overarching performance measures: 1) Safety & Reliability; 2) Maintenance; and 3) Community & Economic Development. These same metrics were applied at a high-level to the Gateway 228 Project to begin to clarify the Corridor's most pressing problems. Table 3 below outlines Gateway 228's trends from the approach used in the Mobility Plan. (Mobility Plan Findings are provided at: <http://www2.co.butler.pa.us/planning/background/bg3.pdf>)

**TABLE 3: Corridor Challenges**

PERFORMANCE METRICS	TRENDS
<b>SAFETY &amp; RELIABILITY</b>	
Crashes	↑
Mode Shift	↔
Vehicle Miles Traveled	↑
Peak Hour Delay	↑
Transit Passenger Trips	↔
<b>MAINTENANCE</b>	
Pavement Condition	↔
Structurally Deficient Bridges	↓
Weight Posted Bridges	↔
Age of Transit Fleet	↔
<b>COMMUNITY /ECONOMIC DEVELOPMENT</b>	
Job Creation	↑
Tourism	↑
Freight Movement	↑
Air Pollution	↑

**Trending Positive**    **Trending Negative**    **Trending Neutral**

Results of this broad examination showed that the Project's greatest transportation challenges consist of an excessive number of crashes, increasing traffic congestion and the inability to keep pace with development. Nevertheless, it was important to confirm whether these overall Project challenges were commensurate with issues at Balls Bend and Haine School-Commonwealth, and identify any other problems that specifically plague those two areas. (For Route 228 Corridor crash data, please see: <http://www2.co.butler.pa.us/planning/roadway/rw10.pdf>)

(Also, photos of the BUILD investment areas are linked at: <http://www.co.butler.pa.us/gallery-gateway228group/>)

### **BALLS BEND**

Balls Bend in rural Middlesex Township is a dangerous section of Route 228 consisting of a series of curves and topographical issues. As part of the *Purpose and Needs Statement* for this investment area, the Pennsylvania Department of Transportation (PennDOT) District 10 analyzed these challenges in depth for Balls Bend, a 1.6-mile, two-lane stretch classified as a Rural Arterial Highway.<sup>3</sup> According to the *Purpose and Need Statement*, there are many deficiencies at Balls Bend “...that can generally be grouped into the categories of capacity, access, and safety.” (For Purpose and Need Statement, please see: <http://www2.co.butler.pa.us/planning/roadway/rw3.pdf>)

#### **– CAPACITY**

Balls Bend is subject periodically to heavy traffic congestion that increases travel times and the probability of traffic incidents. In 2017, the AADT (annual average daily traffic) at Balls Bend was 14,168 vehicles a day and is projected to increase 20 percent over the next 20 years. According to the *Purpose and Needs Statement*, trucks comprise 1,133 vehicles or 8 percent of the traffic through Balls Bend each day. This two-lane segment, which lacks turning lanes, typically “...causes lengthy queues behind left-turning vehicles stopped in the travel lane.” School zones and school bus stops also cause delays throughout. Each day, Balls Bend travelers face congestion delays of: 30 seconds per vehicle per mile heading eastbound during AM peak; 46 seconds per vehicle mile traveling eastbound during PM peak; 22 seconds per vehicle per mile heading westbound during AM peak; and 42 seconds per vehicle per mile westbound during PM peak. For specific congestion management performance data for the Project area please see [https://www.spcregion.org/trans\\_cong\\_detail.asp?corridornumber=81](https://www.spcregion.org/trans_cong_detail.asp?corridornumber=81)

#### **– SAFETY**

Balls Bend is aptly named. The roadway consists of several curves including one hotspot for crashes called Balls Bend for which the entire segment is branded. This roadway doesn’t meet PennDOT’s design standards and impedes site distances, a problem that has contributed to many crashes. Data for the 5-year period between 2013 to 2017 reported 82 crashes along Balls Bend. Compared to Pennsylvania’s statewide average for similar roadways, results show “...that the crash rate (1.81 crashes per million vehicle miles traveled) exceeds the statewide average crash rate (0.89 crashes per million vehicle miles traveled) by more than double. (See Table 4 Balls Bend Crash Data, which was provided by PennDOT District 10, on the next page.)



Route 228 mostly has a posted speed limit of 50 mph (miles per hour); however, Balls Bend contains curves that only meet design speed criteria ranging from 30 mph to 40 mph and is therefore posted throughout with speed reduction warning signs. According to the *Purpose and*

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<sup>3</sup> <https://www.dot.state.pa.us/public/Bureaus/design/PUB13M/Chapters/TOC-2.pdf>

*Need Statement*, “there are three vertical curves within Balls Bend that do not meet the required stopping sight distance for 50 mph design speed. These curves contribute to sight distance issues and crashes on the roadway,” most notably the curve called Balls Bend at which fatalities have occurred in the past. (For Balls Bend crash data, please see: <http://www2.co.butler.pa.us/planning/roadway/rw1.pdf>)

**TABLE 4: Balls Bend Crash Data**

Crash History:

PROJECT CRASH DATA						
Project Limits	Length (miles)	No. of Crashes	Years of Data	AADT	Calculated Crash Rate	Statewide Crash Rate
Segment 0170 Offset 0000 to Segment 0210 Offset 1195	1.75	82	5	14168	1.81	0.89

The crash rate is above the homogenous crash rate for this type of highway

– **ACCESS**

Although it's a regional highway, Balls Bend also serves as a widely used local road passing through a rural community and providing access to residents, schools, businesses and other neighborhood facilities. The problem is, numerous residential driveways along this stretch conflict with regional truck and through-traffic. According to the *Purpose and Needs Statement*, “Conflicts between the through and local trips are prevalent because the lack of turning lanes and narrow shoulders force vehicles to queue behind turning vehicles.” The lengthy queuing that occurs along Balls Bend from left turns into residential driveways has been the source of many of the crashes in this area. With the growing economy along the Project and specifically in Middlesex Township, access issues are anticipated to deteriorate further.

– **ROAD CONDITION**

Road surfacing investments along rural Balls Bend have not kept pace with Route 228 upgrades in the Corridor’s urban areas. Balls Bend was first constructed in 1960 and, according to PennDOT’s maintenance standards, should be paved every 10 years. One segment of Balls Bend was last resurfaced in 2014. However, the other portion has not been resurfaced since 1993. According to PennDOT District 10’s measurements of Balls Bend’s condition in 2012, the ride quality was considered good/fair. But since then, Balls Bend has “deteriorated significantly.” It was scheduled to be resurfaced as part of State Route 228 Butler Paving Cycle in 2003, but the decision was deferred in favor of a more comprehensive Route 228 Corridor rebuild, i.e., this Project. (For paving cycle program, see: <http://www2.co.butler.pa.us/planning/roadway/rw6.pdf>)

**HAINESCHOOL-COMMONWEALTH**

Haine School-Commonwealth investment area differs from Balls Bend in that it is Butler County’s economic activity hub and located in urban Cranberry Township; however, its’ transportation challenges are nearly identical. This 4,052-foot stretch is a pinch-point that impedes movement along Route 228 to and from Shell Chemicals’ ethane cracker plant in Beaver County, and travel for Cranberry Township’s 30,655 residents, 22,087 employees and 854 businesses. Because Haine School-Commonwealth is only expected to get worse by 2030 (forecasting a population of 50,095, 68,537 employees and 1,507 businesses), Cranberry Township’s Engineering & Environmental

Services Department analyzed this investment area and identified the following persistent problems. (See Cranberry Township Projections at: <http://www2.co.butler.pa.us/planning/economic/ec1.xlsx>

#### **– CAPACITY**

Each day, 16,000+ vehicles travel through the Haine School-Commonwealth segment of Route 228 including 1,000 trucks. These volumes are forecasted to increase 73 percent from new development, according to Cranberry Township's Transportation Impact Fee Update 2015, a report that identifies the Township's 10-year capital improvement program. Travelers using this four-lane area each day face congestion delays of: 38 seconds per vehicle per mile heading eastbound during AM peak; 78 seconds per vehicle mile traveling eastbound during PM peak; 4 seconds per vehicle per mile heading westbound during AM peak; and 61 seconds per vehicle per mile westbound during PM peak. This highly congested section lacks controlled access to arterial roads, parallel roads and shared access points. (For congestion management performance please see: [https://www.spcregion.org/trans\\_cong\\_detail.asp?corridornumber=81](https://www.spcregion.org/trans_cong_detail.asp?corridornumber=81); Cranberry Impact Fee Report, see: <http://www2.co.butler.pa.us/planning/background/bg5.pdf>; Haine School-Commonwealth traffic data, please see SincUp Appendices A, B and C at: <http://www.co.butler.pa.us/gw228-roadway>)



#### **– SAFETY**

Besides the lack of an interconnected roadway network, safety is the biggest concern along Route 228 between Haine School Road and Commonwealth Drive. From 2013 to 2017, this area has had 152 total crashes including 48 categorized as some type of serious, minor other injury. Haine School-Commonwealth has a posted speed limit of 35 mph, which most likely mitigates the number of serious injuries and fatalities. However already in 2018, there have been 23 crashes along this stretch. (For Haine School-Commonwealth crash data, please see: <http://www2.co.butler.pa.us/planning/roadway/rw2.pdf>)

#### **– ACCESS**

The top transportation challenge on Route 228 between Haine School Road and Commonwealth Drive as cited by Cranberry Township is the lack of access between parallel or other arterial roadways. Restricted and uncontrolled vehicular movements from parallel roads cause impatient drivers to cut through neighborhoods creating conflicts with pedestrians and bicyclists. Currently, this section is characterized as a four-lane (two-lanes in each direction) arterial that needs an additional travel lane in each direction along with designated left-turn lanes. Part of the challenge is creating controlled and shared access points while buffering residential developments from expansion along this section of Route 228.

## **SOLUTIONS**

*Gateway 228 will resolve our 3 primary transportation challenges by: **adding capacity** consisting of new highway and turning lanes; **supplementing highway lanes** with service and access roads; and **realigning the highway** to eliminate dangerous curves and gradients.*

Butler County's goal for Gateway 228 is that the financial investment in the Corridor, most notably the \$43.7 million that will be expended on the BUILD Project, will eliminate problems of the past and present, and mitigate future issues. Here's how our Project plans to overcome the Corridor's three most significant transportation challenges.

### ***ADDING CAPACITY***

At minimum, four or more lanes will be implemented throughout the 26-mile Project plus turning lanes will be added in each direction. Supplementing this primary approach are complementary measures intended to further enhance movement for the 52,000 vehicles traveling through Route 228 and prepare for the influx of traffic forecasted over the next 10 years. The complementary measures include:

- Installation of controlled access points where secondary arterials intersect with the Project to provide alternative travel routes
- Implementation of landscaped medians throughout to separate opposing traffic and provide pedestrians with safe crossing locations
- Provision of wider shoulders and/or designated pull-off locations to improve safety for police enforcement and emergency services
- Creation of vehicular and pedestrian/bike connections between residential developments to encourage mode switch
- Evaluation and modification of regulatory speeds, and establishment of a speed management plan for speed limit consistencies throughout the Project
- Consideration of WAZE or other smart transportation applications for commuters to share real-time traffic, navigation and road information that will save time and money

### ***INSTALLING SERVICE AND ACCESS ROADS***

Service or frontage roads will be added parallel to the main roadway where the Corridor is bordered by commercial development, and access roads will be added to other designated commercial or residential locations. These methods will address multiple issues including, most notably, improving safety and alleviating traffic congestion.

- Installation of service and access roads parallel to Route 228 to enable local traffic to access/egress commercial and residential development with little to no interruption of mainline traffic and offer alternative routes
- Provision of controlled, safe parallel alternatives to Route 228 to reduce conflict points, and provide safer access and loading/unloading for commercial vehicles
- Restrictions of turning movements from parallel roads to minimize cut-through traffic in neighborhoods and reduce vehicle and pedestrian/bike accidents
- Implementation of pedestrian/bike access via sidewalks and crosswalks at signalized intersections to decrease pedestrian/bike conflicts and accidents

### ***REALIGNING THE ROADWAY***

Sections of roadway exhibiting issues related to elevation and topography, particularly the 1.6-mile stretch of roadway at Balls Bend, will be realigned to eliminate curves and create consistent elevation. This course of action will not only enhance traffic movement but will improve safety and reduce accidents in an area exhibiting a crash rate more than twice the state average.

- Realignment of the road right-of-way and elimination of curves to reduce crashes and fatalities, and improve site distances
- Addition of fill to raise the roadway to eradicate areas where water pools and freezes
- Application of slope cutbacks to increase site lines and distances
- Installation of buffers along areas of existing residential development to improve quality of life by creating a separation from the main roadway
- Implementation of intersection pavement warning markings to alert drivers to safe speeds
- Modernization of end treatments to meet current guiderail turn-down standards and guiderail reflectors

### 1.3 HISTORY

Problems started in the Route 228 corridor at the end of the last century with an explosion of economic activity and population growth in Cranberry Township. This organic, private investment at the nexus of routes 228 and 19 and interstates 79 and 76 set the stage in 2003 for Gateway 228 when local officials and the communities came together to discuss transportation problems arising from emerging employment, and commercial and residential development. Transpiring from stakeholder and public meetings at that time was a way to balance growth with targeted transportation infrastructure investments along Route 228.

In the meantime, beginning in 1999, Cranberry Township developed its own 20-year plan to handle the friction between economic development and transportation infrastructure deficiencies. Over the past two decades, about \$74 million has been invested in Route 228 and connecting transportation infrastructure in Cranberry. Over half of that investment (\$38 million) was funded by the Township, private developers and businesses in the Corridor. The plan and investments made locally in Cranberry Township while awaiting implementation of Gateway 228 are provided at the following links.  
<http://www2.co.butler.pa.us/planning/background/bg7.pdf>;  
<http://www2.co.butler.pa.us/planning/background/bg6.pdf>

As Cranberry implemented stop gap measures to alleviate local pressure, County and municipal officials continued to work with the community to refine and finalize the concept of Gateway 228. Central to the plan was establishing Route 228 as Butler County's primary trade route and high-volume commuter corridor. Key action items supporting the plan's central theme were tackling the transportation network's greatest challenges – capacity, safety and access. Finally, the plan for Route 228 was set and slated for a 2008-2010 construction timeframe. But in 2008, the national economy took a downturn and rumblings about cancelling the Project surfaced. The Project was pushed into future years hoping to coincide with an economic upturn. At the time of the great recession, more than 1 million square feet of retail and commercial development along with the relocation of Westinghouse's global headquarters was planned for the Corridor. But, by the time the economy recovered, five years had passed, construction cost estimates had escalated and private investment had decelerated. Gaps in funding became the issue derailing the Project.

Urgency to implement the Project rekindled when Shell Chemicals announced that its plans for the ethane cracker plant at the western edge of Route 228/Freedom Crider Road in Beaver County had indeed become reality. Intimations about abandoning Gateway 228 ended emphatically as the Project was suddenly elevated to a multijurisdictional and regional priority.

Initial infrastructure investments got underway in 2016 when Beaver County, led by PennDOT District 11, began upgrading Route 228/Freedom Crider Road at Route 65 in the immediate vicinity of Shell's

cracker plant. Beaver County's responsibility for 8-miles of the Corridor upgrade to Butler's county line is being implemented in three-phases, one of which is finished and one that is currently under construction. The final phase of Beaver County's project is 84 percent funded and in final design. Links to Beaver County's project are at: <http://www.projects.penndot.gov/projects/ConstructionMap.aspx>; and <http://www.penndot.gov/RegionalOffices/district-11/ConstructionsProjectsAndRoadwork/Pages/default.aspx>;

**TABLE 5: Beaver County Project Status**

BEAVER CO SEGMENTS	FUNDING STATUS	PROJECT STATUS	PROJECT COST	FEDERAL	STATE/LOCAL
1 - Alleg Co to Crows Run	Fully Funded	Complete	\$11,484,148	\$11,484,148	\$0
2 - Freedom Rd Upgrade A	Fully Funded	Under Construction	\$33,350,000	\$0	\$33,350,000
3 - Freedom Rd Upgrade B-C	Partially Funded	Final Design	\$49,000,000	\$0	\$41,000,000
			\$93,834,148	\$11,484,148	\$74,350,000
				12.2%	79.2%

Now, the time has come for Butler County to implement Gateway 228, a proposal more than 15-years in the making. Financial plan, multijurisdictional and community support, preliminary design, and initial due diligence have all been completed. Some parts of Gateway 228 have been constructed or are currently under construction. Now, thanks to this comprehensive funding strategy based on BUILD, we're ready to take this Project "over the goal line."

#### **1.4 BENEFITS TO RURAL COMMUNITIES**

Middlesex Township, the rural community in which most of the BUILD funds (\$15.8 million or 65 percent) will be used for reconstruction of Balls Bend, will benefit enormously; however, 11 adjacent rural communities (Jackson, Forward, Penn, Jefferson and Winfield to the north, West Deer, Fawn and Frazier to the south, Clinton and Buffalo to the east, and Adams to the west) stand to benefit as well. The infrastructure investments that are part of Gateway 228 will result summarily in mobility enhancements consisting of improved safety, less road congestion and improved travel times. The improvements will enable Butler's rural communities to build safe, sustainable and resilient neighborhoods. The following outlines additional gains Butler's rural communities will realize from Gateway 228.

#### **ECONOMIC DEVELOPMENT**

The Project will enable Butler's rural communities to leverage private investment occurring organically in the Project's urban areas. There are approximately 860-acres of developable land within a 1/2-mile buffer area along the rural stretch of Route 228. Transportation infrastructure improvements, particularly access and service roads in the rural part of the Project, will facilitate economic development, thereby increasing commercial investment, job growth, tax base and per capita income. (Please see the Economic Impact Analysis at: <http://www2.co.butler.pa.us/planning/economic/ec2.xlsx>)

Gateway 228 is crucial for the agricultural industry in Butler County. The Project will benefit farms in the 11 rural communities located along or adjacent to the Project. There are 52 farms in Butler County that are preserved into infinity through the Farmland Preservation program. Sixteen of them, consisting of nearly 1,900 acres, are on the Route 228 corridor. Farms and farm-related companies ship products consisting of beef, corn and grains along this roadway. Farms in adjacent counties of Allegheny, Beaver and Armstrong ship through the Project area as well. Gateway 228 will improve movement of agricultural and livestock products by reducing travel time and saving costs that can be re-invested back into the industry. (Please see Freight Movement Data SPC and Farms in Project Area at:

<http://www2.co.butler.pa.us/planning/economic/ec4.xlsx>;  
<http://www2.co.butler.pa.us/planning/economic/ec3.xlsx>)

## **SAFER ROUTES TO SCHOOLS**

Gateway 228 will establish safer travel for more than 4,000 kids that go to school in the Corridor. All Mars Area School District's education and athletic facilities are located along Route 228 in rural Middlesex Township as well as five other schools in the vicinity, including Cardinal Wuerl North Catholic High School. Mars School District's 3,330 students are transported by AJ Myers & Sons, which makes hundreds of trips each day along Balls Bend, the most dangerous stretch of the Project area. Gateway 228's realignment of the roadway and improvements to access at Balls Bend will reduce traffic conflicts and accidents, and enhance the opportunity for students to walk safely to school.

## **IMPROVED SHIPMENT OF COMMODITIES**

In the rural area of the Project, there are 2,084 businesses that ship more than \$1.013 billion worth of goods annually. More than 122 of those businesses are farms or farm product companies that ship nearly \$13.3 million of commodities through the Project area each year. Gateway 228's infrastructure investment will result in safer and more efficient transport of their commodities. Overall, the primary benefit to businesses shipping products through the Corridor will be the cost reduction of moving and trading goods specifically by decreasing trip duration, reducing damages to goods, and enabling increased volumes of goods shipped. (Please see Freight Movement Data SPC at: <http://www2.co.butler.pa.us/planning/economic/ec4.xlsx>).

## **QUALITY OF LIFE**

People that live in the rural neighborhoods around the Project relish the countryside and rustic character of their communities and want to preserve it. That's the message that was heard from rural residents during community outreach meetings and forums. As a result, it became a Project priority to strike a balance between economic growth and quality of life by confining commercial investment in the rural communities to areas immediately adjacent to Route 228.

When Balls Band is realigned and upgraded, it will be the first time since 1993 that Middlesex Township will have a complete, modern, well-maintained roadway through their community. Gateway 228 will radically improve this area, sections of which have been unattended and deteriorated for the last 15 years. In addition to roadway, investments will be made in utilities, signals, pedestrian/bike access and safety features.

Prior to this Project, residents in Butler County's rural areas had limited transportation options. Gateway 228's capacity improvements enable expansion of Butler Transit Authority's (BTA) fixed route commuter service and implementation of a new micro-transit demonstration pilot project. BTA's new service will enable commuters from the County's rural areas to connect to a hub in Cranberry Township and downtown Pittsburgh. The micro-transit pilot will enable residents in and around Cranberry Township to connect with jobs, shopping and healthcare. If successful, this pilot will expand geographically to more area locations allowing residents to travel on-demand to desired destinations.

## **1.5 ACHIEVING BUILD'S CRITERIA**

Gateway 228 meets all eight merit-criteria to some extent; however, the Project strongly achieves Safety, State of Good Repair, Economic Competitiveness, Quality of Life, Partnership and Non-Federal

Revenue. Please refer to Table 12: Merits of Gateway 228 in Section 4.1 on page 21 for detail and correspondence with BUILD criteria.

Gateway 228 is also “ready” and technically feasible as described in Section 4.2 Project Readiness on page 23. The Project schedule and timelines for completing all tasks adhere with BUILD milestone, grant obligation and construction completion requirements.

## **1.6 STATEMENT OF WORK**

The Statement of Work describes the Project’s goals, scope of work, timeline and standards for accomplishing the Project.

### **PROJECT OBJECTIVES**

To construct a Project that resolves capacity, safety and access problems and modernizes transportation infrastructure to accommodate and sustain economic growth.

### **PROJECT SCOPE**

The scope of work described below consists of abridged activities required to prepare for and construct BUILD investment areas.

- Acquire Right-of-Way in commercial and residential areas
- Mobilize equipment and secure site
- Conduct construction surveying (ongoing)
- Monitor CPM schedule (critical path method)
- Prepare Project sites by clearing and grubbing approximately 15,000+ linear-foot area along Route 228 segments
- Demolish current roadway/asphalt and other structures
- Excavate sites and prepare for utilities and paving
- Relocate and install utilities including electric, waterline, gas line, sanitary and manholes adjustments
- Conduct paving
  - super-paving base course; sub-base; wearing course; binder course; bituminous tact coat; thermoplastic pipe; reinforced concrete pipe; concrete top unit and grate; permanent impact attenuating devices
- Install guide rail
- Install concrete curbs
- Install traffic signals
  - traffic signal supports and mast-arms
- Design and implement White Hot Thermoplastic pavement markings
- Construct bridge structures
- Install culvert structures and inlets
- Implement stream mitigation solutions
- Conduct construction inspection
- Close-out Project

## **TIMELINE FOR CONSTRUCTION**

By the last quarter of 2021, the Project will be ready to advertise for construction bids. The letting process is anticipated to take 120 days consisting of solicitation, bid submissions, review and selection, and contract negotiations. The Project will get underway early in the 2022 construction season and span a duration not to exceed 32-months. In fact, Project engineers anticipate a shorter timeline for construction, however, we conservatively depicted the timeline to ensure that if any issues arise, the Project will be completed within the BUILD program's deadlines.

**TABLE 6: BUILD Investment Construction Schedule**

## INTERNAL STANDARDS AND GUIDELINES

PennDOT policies and procedures will govern the way that Gateway 228 is constructed, monitored and closed-out. Our Project will adhere to the Highway Design Manual's specific standards for roadway construction, control of access and construction staging. During construction, traffic and work zones will be maintained, protected and controlled according to PennDOT's Maintenance and Protection of Traffic During Construction and Incident Management Plan Implementation. Any disputes arising during construction will be resolved according to specific regulations described in Section 108 of PennDOT's Publication 408. (Standards governing the Project are: <http://www.co.butler.pa.us/gw228-standards>; and [http://www.dot.state.pa.us/public/PubsForms/Publications/Pub\\_408/408\\_2007/408\\_2007.pdf](http://www.dot.state.pa.us/public/PubsForms/Publications/Pub_408/408_2007/408_2007.pdf)

## 1.7 PROJECT SCHEDULE

Besides local and regional pressure to complete Gateway 228, the Project is driven by two primary milestones identified in the Notice of Funding Opportunity for the Department of Transportation's National Infrastructure Investments under the Consolidated Appropriations Act, 2018: September 30, 2020, which is the obligation requirement date; and September 30, 2025, the date by which the Project and funding draw must be completed. It is around these deal-breaker deadlines we established Gateway 228's Project timeline and accomplished BUILD's goals.

Butler County Department of Economic Development, the BUILD grant applicant, has the capacity and ability to administer the BUILD Project in an organized and timely manner. The Department, with support and oversight from Butler County's Commissioners, has formed a Project team, consisting of the County, PennDOT District 10, Southwestern Pennsylvania Planning Commission (SPC, local MPO) and Cranberry Township, that has been meeting for months to prepare for Gateway 228's infrastructure implementation. These agencies bring a wealth of practical experience, knowledge of policies and procedures that regulate large-scale construction projects, adherence to budgets and schedules, and compliance with funding programs. The team has experience using multiple funding sources and overcoming complexities associated with reporting, tracking and closing-out sources. The following tables depict the project schedule and permit approval timelines.

**TABLE 7: BUILD Project Schedule**

Project: Gateway 228	2018												2019												2020												2021												2022												2023												2024																																														
	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November
Task																																																																																																																							
NEPA Clearance																																																																																																																							
Traffic Analysis (Haine School-Commonwealth only)																																																																																																																							
Alternatives Analysis (Balls Bend only)																																																																																																																							
Environmental Approvals																																																																																																																							
ROW Acquisition																																																																																																																							
Utilities Clearance																																																																																																																							
Preliminary Engineering (underway since May 2014)																																																																																																																							
Final Engineering																																																																																																																							
Project Advertise and Letting																																																																																																																							
Construction																																																																																																																							

**FIGURE 1: Permits and Approvals Timeline**



## 1.8 PROJECT BUDGET

The Project budget (\$43,773,657) is based on detailed construction cost estimates provided by engineers on Gateway 228's project team, HDR Engineering for Balls Bend and Herbert Rowland & Grubic, Inc. (HRG) for Haine School-Commonwealth. Table 2 BUILD Investment Areas on page 3 shows total costs by category with detailed construction cost estimates for both investment areas linked here. (Engineers' cost estimates are linked at: <http://www2.co.butler.pa.us/planning/financial/ece.xlsx>).

## 1.9 BENEFIT-COST ANALYSIS

The scope of the benefit cost analysis (BCA) included the two improvements that would be directly funded by the requested BUILD grant funding: 1) Haine School-Commonwealth, and 2) Balls Bend. These combined investment areas are collectively referred to as the BUILD project. The BCA scope is limited to costs and benefits directly resulting from the BUILD project improvements.

For purposes of this analysis, completion of the BUILD project improvements was compared to a base alternative, which in this case, was a no-build alternative. The benefits include improved safety, travel time reduction, operating cost reduction, and reduced emissions. The costs include engineering, right-of-way acquisition, utilities, and construction.

The results combine the annual schedule of costs and benefits to determine an overall net benefits. The benefits include safety savings, travel time savings, operating cost savings, and emission savings. The results show a negative benefit (cost) during the construction period, which is the result of temporarily increased travel times during project construction. This also results in a negative benefit (cost) for operating cost savings during the same period. Implementing the Project would result in additional short-term costs, but long-term benefits.

The benefit cost analysis results show a positive net benefit of \$71,336,119 before discounting (benefits totaling \$115,109,776 less costs totaling \$43,773,657), a benefit-to-cost ratio of 2.6. In accordance with USDOT guidance, the net benefits are discounted at 7.0 percent, which reflects the time value of money – benefits in the near term are of greater value than benefits in the far term. After discounting, the net benefit totals \$34,324,945 (discounted benefits totaling \$73,880,791 less discounted costs totaling \$39,555,846), a benefit-to-cost ratio of 1.9. The results are summarized in the following table.

**Table 8 – Benefit Cost Analysis Summary Results**

<b>BENEFIT-TO-COST RATIO BEFORE DISCOUNTING</b>	2.6
<b>NET BENEFIT BEFORE DISCOUNTING</b>	\$ 71,336,119
<b>BENEFIT-TO-COST RATIO WITH 7% DISCOUNT</b>	1.9
<b>NET BENEFIT WITH 7% DISCOUNT</b>	\$ 34,324,945

The BCA is provided as an appendix to this Narrative

## 2. PROJECT LOCATION

### 2.1 GEOGRAPHICAL DESCRIPTION

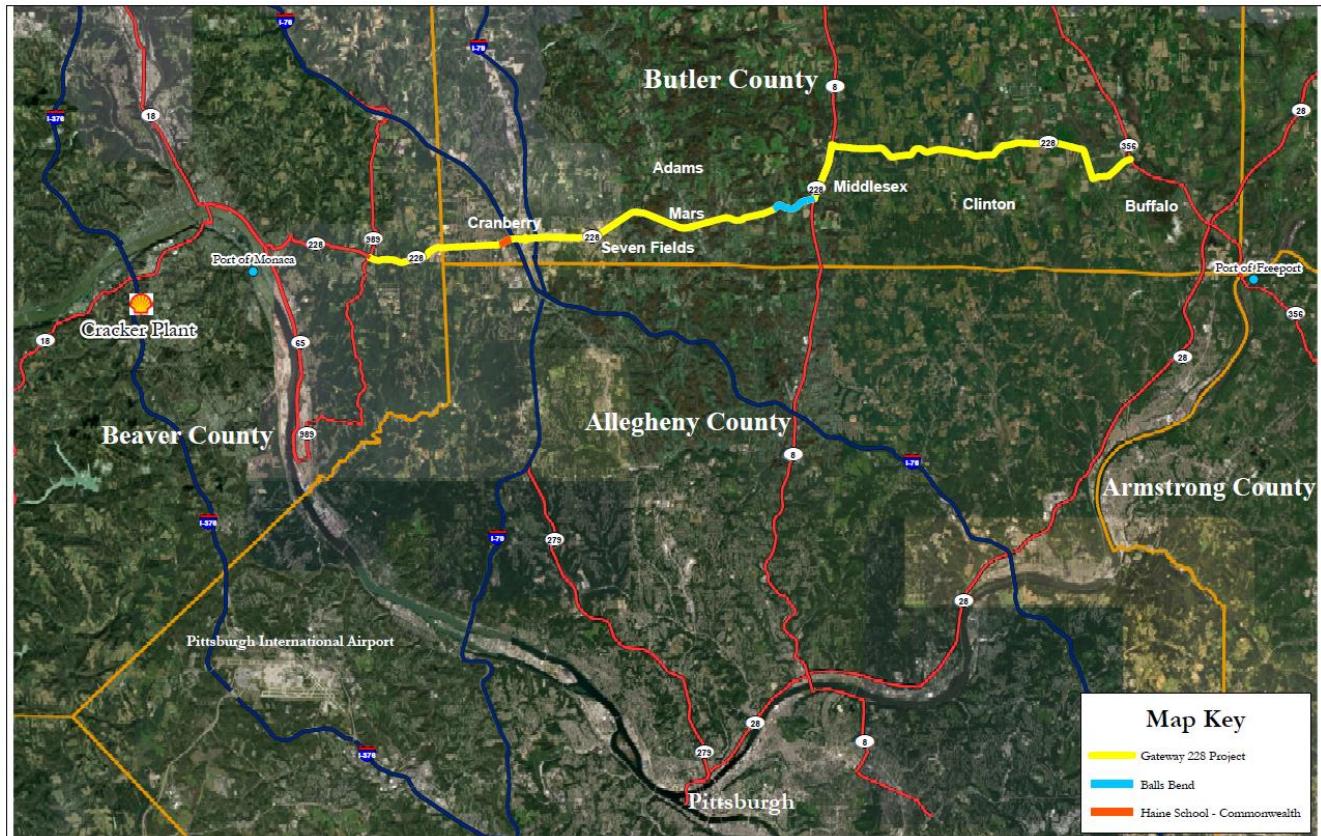
Gateway 228 Project is in southern Butler County, Pennsylvania. The Project spans 26.4-miles, the entire width of Butler County. The western boundary of the Project is located at Route 989 (Dunlap Hill Road) at Route 228 (Freedom Crider Road) where it intersects with Beaver County, our Project partner, and coordinates with their capital investments in the 228 Corridor. The eastern boundary is located at Route 228 (Sarver Road) at Route 356 (South Pike Road) where it integrates with improvements at Route 356, and connection to Armstrong County.

BUILD funds will be invested in two specific sections of Gateway 228: Balls Bend and Haine School-Commonwealth.

- Balls Bend is in Middlesex Township, Butler County. This investment area spans 1.6-miles beginning approximately  $\frac{1}{4}$ -mile east of Three Degree Road to the intersection with Route 8 (Pittsburgh Road).
- Haine School-Commonwealth is in Cranberry Township, Butler County. This investment area consists of the highway segment between Route 228 (Freedom Road) at Haine School to the west and Route 228 (Freedom Road) at Commonwealth Drive to the east.

### 2.2 LOCATION AND CONNECTIONS TO TRANSPORTATION NETWORK

**MAP 2: Project Location and Connections to Transportation Infrastructure**



Gateway 228 makes critical connections to Butler County's and Southwestern Pennsylvania's transportation infrastructure, and enables access to the national highway system. Map 2 on the previous page shows the Project juxtaposed geographically with existing transportation networks, each of which is described below.

**TABLE 9: Connections to Existing Transportation Infrastructure**

<b>ROUTE 228, THE PROJECT</b>	The Project is not only the primary east/west artery providing entry to essential intra-county connections and services, but also access to our neighboring counties of Beaver and Armstrong.
<b>INTERSTATE 76, THE PENNSYLVANIA TURNPIKE</b>	The Project enables access to the Cranberry Turnpike Interchange on I-76, which is the primary link to communities throughout the Commonwealth and to Ohio, our neighboring state.
<b>INTERSTATE 79</b>	Route 228 intersects with I-79 providing movement to areas in the eastern United States. To the north, travelers using I-79 can access Butler County's communities, Erie, Lake Erie and connections to New York. The Project links with I-79 to the south enabling travel to Pittsburgh, West Virginia and ancillary connections into Virginia.
<b>ROUTE 65, BEAVER COUNTY</b>	At the western end of Gateway 228, the Project intersects with Route 65 in Beaver County providing the primary connection to Shell Chemical's ethane plant, the shipping port on the Ohio River in Monaca, and communities and recreation along the Ohio River.
<b>ROUTE 356, ARMSTRONG COUNTY</b>	At the eastern end of Route 228, the Project intersects with our neighboring county, Armstrong, at Route 356, which provides a critical connection to the Allegheny River and Freeport Borough's shipping port.
<b>ROUTE 8 AND ROUTE 19</b>	These routes both intersect locally with Gateway 228 and are the main north/south connections to and for Butler County neighborhoods. Heading north on Route 8 accesses some of the most beautiful forest and game lands in Pennsylvania, Allegheny National Forest, and south takes travelers into Pittsburgh. Route 19 north passes through many Butler and adjacent county neighborhoods on the way to its terminus near Lake Erie. And south, Route 19 goes directly into Pittsburgh and through West Virginia.

## 2.3 Geospatial DATA

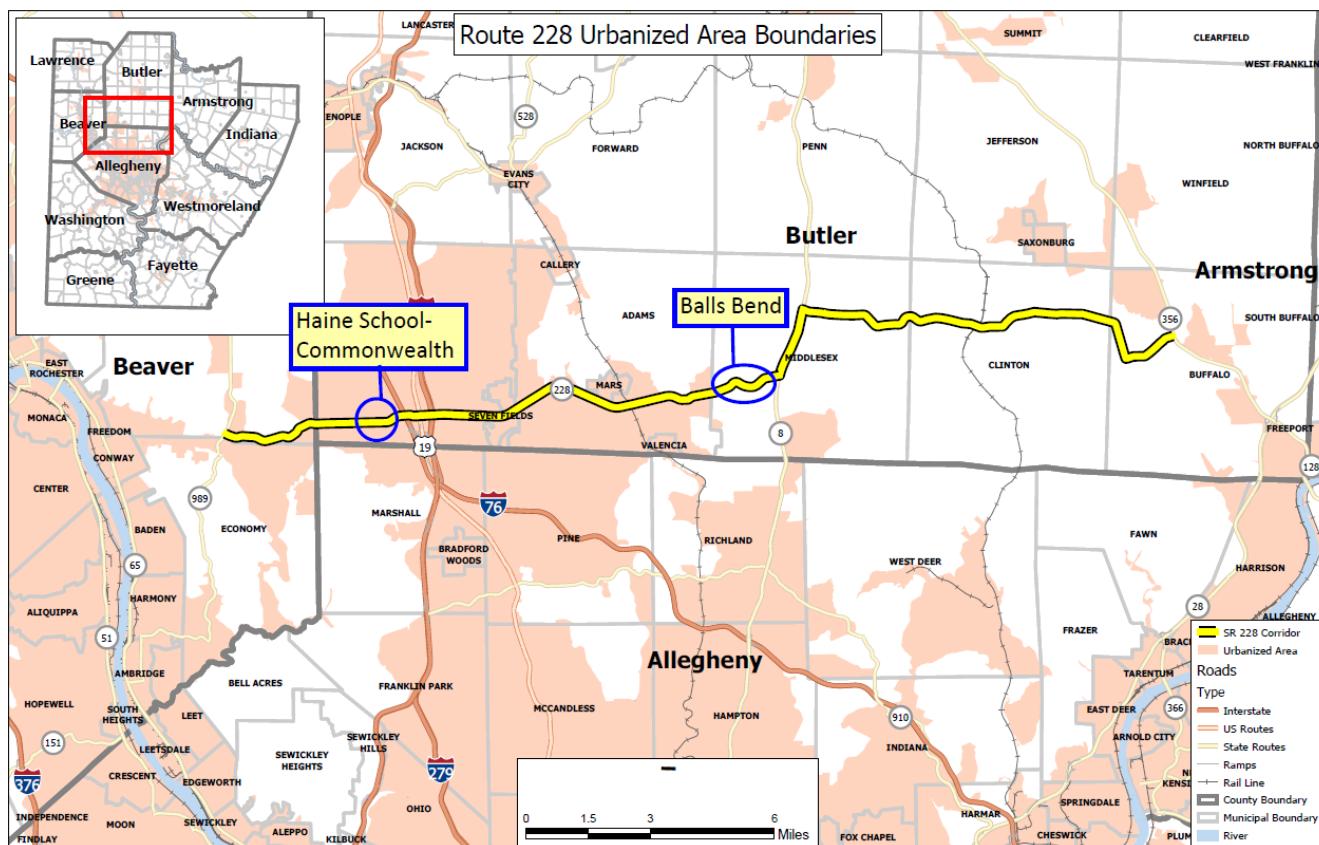
Gateway 228 Project is located between the following geospatial coordinates described in Table 10 on the next page.

TABLE 10: Project Geospatial Location

PROJECT	WESTERN BOUNDARY	EASTERN BOUNDARY
<b>GATEWAY 228 OVERALL</b>	228/Freedom Crider Road Freedom, PA 15042 <i>40.676816, -80.190368</i>	228/Freedom Road Sarver, PA 16055 <i>40.719319, -79.755709</i>
<b>BALLS BEND INVESTMENT</b>	228/Freedom Road Mars, PA 16046 <i>40.694571, -79.972907</i>	228/Freedom Road Valencia, PA 16059 <i>40.702199, -79.936389</i>
<b>HAINES/COMMONWEALTH INVESTMENT</b>	228/Freedom Road Cranberry Township, PA 16066 <i>40.682030, -80.125133</i>	228/Freedom Road Cranberry Township, PA 16066 <i>40.684460, -80.111372</i>

Gateway 228 falls within the Pittsburgh Urbanized Area (UA69697). About 40 percent of Gateway 228 roadway is within the boundary of a Census-designated urbanized area and 60 percent is located outside the urbanized designation. See Map 3 below which illustrates the Gateway 228 Project in yellow and BUILD investment areas of Balls Bend and Haine School-Commonwealth in blue. Relative to BUILD investment areas, Balls Bend is in a rural area and Haine School-Commonwealth is in an urbanized area. A little more than 65 percent of the BUILD funds will be used to reconstruct Balls Bend in rural Middlesex Township.

MAP 3: Project Location within Region and UA



### 3. GRANT FUNDS, SOURCES & USES OF FUNDING

#### 3.1 SOURCES AND USES

BUILD funds will be used for construction of Balls Bend and Haine School-Commonwealth plus a portion of utility work on Haine School-Commonwealth. State and local matching funds will be used for engineering and design, right-of-way acquisition and utilities. Table 10 depicts the cost breakdowns and sources of funds.

**TABLE 11: BUILD Project Sources and Uses Budget**

BUILD INVESTMENT AREAS	PROJECT COST	FEDERAL		NON-FEDERAL	
		OTHER FEDERAL	BUILD	STATE	LOCAL
3 - Haine School to Commonwealth	<b>\$10,260,557</b>				
Engineering & Design	\$850,000	\$0	\$0	\$0	\$850,000
ROW Acquisition	\$670,000	\$0	\$0	\$0	\$670,000
Utilities	\$1,257,750	\$0	\$1,006,200	\$0	\$251,550
Construction	\$7,482,807	\$0	\$7,482,807	\$0	\$0
11 - Balls Bend	<b>\$33,513,100</b>				
Engineering & Design	\$1,914,500	\$1,531,600	\$0	\$382,900	\$0
ROW acquisition	\$3,628,200	\$0	\$0	\$3,628,200	\$0
Utilities	\$570,100	\$456,080	\$0	\$114,020	\$0
Construction	\$27,400,300	\$8,372,410	\$15,858,210	\$3,169,680	\$0
<b>TOTALS</b>	<b>\$43,773,657</b>	<b>\$10,360,090</b>	<b>\$24,347,217</b>	<b>\$7,294,800</b>	<b>\$1,771,550</b>
		79.3%		20.7%	

#### 3.2 FUNDING COMMITMENT

Several procedures have been put in place to demonstrate funding commitments for Gateway 228 and specifically the BUILD investment areas. In the Appendix and linked in the Financial Information Folder are several important documents including:

- A letter from Leslie Osche, Chairman, Butler County Board of Commissioners committing \$5,000,000 in matching funds from a combination of sources consisting of Butler County Infrastructure Bank, Vehicle Registration Use Fee and already-programmed state TIP dollars;
- A resolution from the Butler County Board of Commissioners authorizing Butler County Department of Economic Development to apply for a BUILD grant in the amount of \$25,000,000 for investment in Gateway 228 and committing \$5,000,000 to match the funds being applied for under BUILD; and
- Certification that the resolution is true and correct and adopted by a majority vote of Butler County Commissioners.

These funding commitments are linked at: <http://www.co.butler.pa.us/gw228-financial>.

In addition to state TIP funds, local funding contributions to leverage BUILD funds will come from three new revenue sources: Vehicle Registration User Fee; Butler County Infrastructure Bank; and Cranberry Impact Fee Program. Butler County's 205,000 vehicles generating about \$1 million annually can secure

up to \$9 million from Pennsylvania's Infrastructure Bank. The County's Infrastructure Bank is replenished annually with about \$1.5 million in allocations from the Unconventional Gas Well Fee Fund. And, Cranberry Township's Impact Fee Program imposes fees based on a unit cost per trip formula on all new development, which is reinvested in transportation capital improvements. Please see Cranberry's Impact Fee Program Ordinance at: <https://ecode360.com/14185816>

Gateway 228 will be completed in sections, which are described in Table 1 Gateway 228 Costs and Status on page 2. There are 13 sections: two that are complete; three that are under construction; and eight that are underway. BUILD investment areas of Balls Bend and Haine School-Commonwealth are slated next for construction because those segments are the most ready and impactful to the community.

# 4. CRITERIA

## 4.1 MERIT CRITERIA

Our goal throughout the application was to describe Gateway 228 and the BUILD investment areas in the context of BUILD's merit criteria. Nevertheless, a summary of how our Project meets the merit criteria is conveniently and concisely described in Table 12.

**TABLE 12: Gateway 228's Consistency with Merit Criteria**

MERIT CRITERIA	HOW GATEWAY 228 ADDRESSES THESE CRITERIA	REFERENCE
<b>a. SAFETY</b>	<p>Because some of the Project area has crash rates more than double the state-wide average, improving Safety is a main goal. The roadway at Balls Bend will be realigned to eliminate curves and gradients thereby improving site distances and eliminating pooling water and ice. Four-lane road will be implemented throughout the Project alleviating rear-end crashes. With the addition of parallel access and service roads and designated access points, unsafe turns and conflicts will be eliminated.</p> <p>These improvements, according to forecasts from the BCA, will reduce crashes by 66 percent.</p>	Application Pages 4-7  BCA Pages 6-9
<b>b. STATE OF GOOD REPAIR</b>	Standards for the Project area have consisted of paving and roadway upgrades at an interval of every 10 years. However, some of the rural areas along Gateway 228 haven't been paved since the early 1990s. Investment hadn't been made consistently throughout the Corridor. The Project will upgrade the sub-base and base of the roadway, and install culvert structures, inlets and basins for storm water management. This will result in: better, more resistant and sustainable facilities; elimination of water pooling and freezing which prematurely deteriorated the roadway in the past; and reduction of life-cycle maintenance costs due to modernization.	Application Pages 7-9, 12
<b>c. ECONOMIC COMPETITIVENESS</b>	<p>Gateway 228 is a significant shipping corridor; more than \$26 billion worth of goods are exported every year using Route 228. The Project is also the primary commuting corridor for Butler County residents and for 22,000 employees entering the County to work. More than 52,000 vehicles each day travel through the Project area.</p> <p>Currently, the annual value of time delay in the area is \$2.6 million, however with the improvements, time delays and value of time delays decrease by 40 percent. These reductions translate into savings and efficiencies for businesses, commuters and residents.</p> <p>Based on an economic impact analysis, Gateway 228 results in many economic benefits. In addition to upgrading transportation infrastructure, construction of Gateway 228 will result in more than 2,300 direct, permanent jobs and over \$84 million annually in local, state and federal taxes. <b>See link to:</b> <a href="http://www.co.butler.pa.us/gw228-economic">http://www.co.butler.pa.us/gw228-economic</a></p>	Application Pages 3, 10, 11  BCA Pages 10-14

<b>d. ENVIRONMENTAL PROTECTION</b>	<p>The Project, according to air quality models performed by SPC, the regional MPO, reduces annual VOC (-.78), CO (-7.08), NOx (-1.56), and PM 2.5 (-.12). Translated into value of emissions reductions, the Project saves about \$16,500 annually.</p> <p>Generally, improvements at Balls Bend focus on eliminating dangerous pooling of water and ice along the 1.6 mile geographically challenging stretch of roadway. Specifically, storm water run-off solutions are built into the infrastructure improvements not only to address environmental compliances but to reduce traffic accidents, which as stated previously are expected to decrease by 66 percent.</p>	BCA pages 18-20  Application Page 9
<b>e. QUALITY OF LIFE</b>	<p>By implementing access and service roads parallel to the main roadway and upgrading signals and intersections at cross roads, the Project creates alternative and controlled secondary routes as options for travelers that need to access the Corridor.</p> <p>Gateway 228 doesn't implement public transportation; however, the Project sets the stage for the expansion of transit in Cranberry Township and opportunity for Butler residents to use transit to get there.</p> <p>The Corridor is the main economic activity center in Butler County; Project improvements will make it easier and efficient for users to access schools, businesses, farms, healthcare and retail that is prevalent but currently not convenient to access. Improvements also make it more efficient to access Beaver and Armstrong counties, locations exhibiting job growth and shipping ports.</p> <p>Rural residents resoundingly expressed their concerns about containing development and not changing or degrading the charming rural character of the communities. The Project incorporates citizens' concerns by constraining development to the immediate Corridor and preserving quality of life.</p> <p>The area already has broadband installed along the Corridor. Mindful of BUILD's primary objective for broadband deployment, the County Commissioners have contacted all broadband providers to inform them about Gateway 228 and opportunities for them to make upgrades during construction of the Project.</p>	Application Pages 8, 9  Application Page 11  Application Page 3, 10, 11  Application Page 26
<b>f. INNOVATION</b>	<p><i>Innovative Technologies</i> – The Project is going to incorporate smart, real-time traffic and navigation application for commuters to share traffic, navigation and road information that will save time and money.</p> <p><i>Innovative Financing</i> – Butler County developed a funding approach to use local fees/revenues to leverage state dollars to undertake not only the BUILD investment areas but Gateway 228 overall.</p>	Application Page 8  Application Page 3, 19, 20
<b>g. PARTNERSHIP</b>	<p>Gateway 228 intersects with two other counties and seven municipalities. Butler County, PennDOT District 10, SPC and Cranberry Township, Middlesex Township are primarily partners.</p>	Application Pages 1, 2

	<p>A complete list of partners consists of: Butler County; Beaver County; Armstrong County; Cranberry Township; Seven Fields Borough; Mars Borough; Adams Township; Middlesex Township; Clinton Township; and Buffalo Township; all related police, fire and emergency departments; and school districts along the Corridor; SPC; PennDOT Central Office; and PennDOT District 10.</p> <p>Numerous private-sector parties support Gateway 228 including Westinghouse and PPG to names a few.</p> <p>Our state and federal legislators support the Project.</p> <p>Private sector has been interested and, in fact, invests financially in the Project by way of Cranberry's impact fees and revenues from oil and gas companies.</p> <p><b>Support letters from Partners are provided in the Appendix and linked at: <a href="http://www.co.butler.pa.us/gw228-letters">http://www.co.butler.pa.us/gw228-letters</a>.</b></p>	
<b>h. NON-FEDERAL REVENUE</b>	<p>There are two sources of newly created, secured and committed revenue sources for Gateway 228: Butler County Infrastructure Bank funds; and Vehicle Registration User Fee funds.</p> <p>These funds will be used to leverage Pennsylvania Infrastructure Bank and other funds related to the Vehicle User Fee.</p> <p>Forecasts and modeling show that the Vehicle User Fee will generate over \$900,000 annually to leverage \$9 million in state funds. Butlers own infrastructure bank is currently being funded with about \$1.5 million annually.</p>	Application Page 3, 19, 20

## 4.2 PROJECT READINESS

Segueing from parts of Gateway 228 that are already underway, the BUILD investment (i.e., Balls Bend and Haine School-Commonwealth) is scheduled (i.e., with the securing of BUILD funding) to begin construction in March 2022 and end construction in October 2024, 11 months ahead of BUILD's proposed deadline of September 2025. In fact, our schedule was developed conservatively to provide cushion in case of unforeseen occurrences that might jeopardize the deadline. (See Section 1.7 Project Schedule on page 13.

### a. TECHNICAL FEASIBILITY

Gateway 228 Project started in 2013 with planning and preliminary design of several of the Corridor's sections. Since then, construction has been completed on two sections and three others are currently under construction. (See Section 1.3 History on page 9). The Project is considered technically feasible for the following reasons:

- Gateway 228's Balls Bend and Haine School-Commonwealth are slated as the next segments for construction and have previously completed planning, concept and design studies including but not limited to: concept planning, traffic volume and impact, traffic level of service, traffic signal sync-up analysis, purpose and need, cross section and other reports that can be found at <http://www.co.butler.pa.us/gw228-roadway>. Currently both investment areas are in preliminary engineering including alternatives analysis for Balls Bend, which will be

completed this year. These investment areas are considered technically feasible, which is why they were selected as BUILD program target areas.

- The basis of design was developed by PennDOT District 10 to accomplish the Project's transportation challenges as identified in the Purpose and Need Statement and follows design criteria in PennDOT's Highway Design Manual, Part 2.  
(<http://www2.co.butler.pa.us/planning/standards/PennDOT%20Highway%20DM.pdf>)
- The basis for the cost estimate presented in the BUILD application is addressed in Section 1.8 Project Budget on page 15. Conservative contingencies commensurate with level of design and complexity of the Project are incorporated.
- Our Project engineers built about an 8-month cushion into the construction portion of the schedule to account for unforeseen weather or other unintended consequences.

## **b. PROJECT SCHEDULE**

The Project schedule was developed around key milestones related to National Environmental Policy Act (NEPA) process and approvals and the BUILD program's critical deadline dates related to grant obligation and construction completion. Please see the schedule and timeline for permits and approvals in Figure 1 in Section 1.7 Project Schedule on page 14.

## **c. REQUIRED APPROVALS**

### **1. ENVIRONMENTAL PERMITS AND REVIEWS**

All permits, approvals and NEPA are in process for Balls Bend and Haine School-Commonwealth. (Some of the other segments of Gateway 228 have completed permitting and approvals.) We will be making submissions throughout this year and next to the Department of Environmental Protection (DEP), Butler County Conservation District, United States Army Corp of Engineers (ACOE), and Middlesex and Cranberry townships respectively. So far, our Project engineers have had one field meeting with officials from the aforesaid organizations to discuss the Project scope and timeline. See Section 1.7 Project Schedule, Figure 1 Project Permits and Approvals Timeline on page 14.

### **PUBLIC ENGAGEMENT**

Public engagement for Gateway 228 extended as far back as 2003 for the western part of the Corridor, began in 2007 for Haine School-Commonwealth and concluded in February 2016 with completion of Balls Bend outreach effort.

About a decade ago, Cranberry Township began partnering with PennDOT District 10 on several phases of improvements in the Haine School-Commonwealth investment area. That collaborative effort revealed many unanswered questions about the future and character of Route 228 in Cranberry Township. This led to a comprehensive planning effort in 2009 focusing on public input and the following goal:

*“Work with residents and businesses impacted by the Route 228/Freedom Road Corridor to develop a land use and transportation master plan that will guide future land use decisions and implementation of road improvements in the Route 228/Freedom Road Corridor.”*

Thus, a community input effort began that was used to guide the future of the Corridor in Cranberry. A planning advisory committee was selected to oversee the process as well as several study committees that concentrated on examining transportation, land use and reviewed results

of a previous residents' survey. Approximately a dozen committee meetings were held to review and understand current needs, as well as, future challenges facing the Corridor as described by residents.

- Improve and preserve quality of life
- Implement pedestrian-friendly streets and developments
- Create safe links jobs, shopping, neighborhoods, trails and recreation areas
- Improve street connections and alternative access to I-79 and other north/south and east/west links
- Create a network of streets to improve all kinds of connectivity
- Prepare for the implementation of Public Transportation to provide alternative modes for residents, employers and visitors

(Please see Project history at: <http://www2.co.butler.pa.us/planning/background/bg6.pdf>)

PennDOT District 10 led the public engagement process with assistance from McCormick Taylor, a transportation planning and engineering firm specializing in developing and implementing effective communications strategies that help communities accomplish their objectives. The Public Involvement Plan, *Comprehensive Summary Public Involvement Activity*, consisted of ongoing coordination with local municipalities public meetings with plans and displays, formation of a Stakeholders Committee, and ongoing communication with state, county and local public officials. The Stakeholder Committee consisted of interests from homeowners, farm owners, businesses, property owners, township officials, school officials and emergency service providers.

For the Balls Bend investment area, the following public engagement activities were conducted, and resultant comments were integrated into the Project during the preliminary engineering phase.

Nov. 19, 2014:	Public Officials Briefing #1 and Public Meeting #1 (Project introduction for public review and feedback)
May 6, 2015:	Middlesex Township Supervisors Coordination Meeting (Identified and discussed constituent interests and concerns)
June 24, 2015:	Public Officials Briefing #2 and Public Meeting #2 (Introduction of a third alternative and comparative analysis)
Aug./Sept. 2015:	Formation of a Project Stakeholders Committee
Oct. 15, 2015:	Stakeholders Committee Meeting #1 (Orientation, concurrence on Purpose and Needs, identify key concerns)
Oct./Nov. 2015:	Five Stakeholder Segment Meetings Conducted by Stakeholders
Dec. /Jan. 2016:	Two Local Business Interviews (Corridor significance, truck trip generation, project need)
Feb. 9, 2016:	Public Officials Briefing #3 (Identify final alternative)
Feb. 10, 2016:	Stakeholders Committee Meeting #2 (Identify final alternative)
Feb. 24, 2016:	Public Meeting #3 (Identify final alternative)

The primary concern vocalized by residents was making sure their quality of life wasn't negatively impacted by the roadway realignment, which could potentially move the roadway closer to their homes or take valuable farmland. As a result of public feedback, a third alternative was developed slightly north of the others that led to concurrence of the final alternative. (Please see Balls Bend Public Involvement Summary at: <http://www2.co.butler.pa.us/planning/background/bg1.pdf>)

## 2. STATE AND LOCAL APPROVALS

Gateway 228 including Balls Bend is up-to-date on local and state approvals, and is designated on SPC's Transportation Improvement Program (TIP) and Pennsylvania's State Transportation Improvement Program (STIP). Gateway 228 complies with state, regional and local transportation plans. All permits and approvals for Gateway 228 are incorporated into Figure 1 Project Permits and Approvals Timeline in Section 1.7 Project Schedule on page 14.

SPC's TIP and Pennsylvania's STIP are linked below.

[https://www.spcregion.org/pdf/TIP2017-2020/Appendix%205%20files/App\\_5\\_Butler\\_Index.pdf](https://www.spcregion.org/pdf/TIP2017-2020/Appendix%205%20files/App_5_Butler_Index.pdf)

[https://www.spcregion.org/pdf/TIP2017-2020/Appendix%205%20files/App\\_5\\_Butler.pdf](https://www.spcregion.org/pdf/TIP2017-2020/Appendix%205%20files/App_5_Butler.pdf)

<http://www.projects.penndot.gov/projects/TipVisMap.aspx?basemap=esriStreets&visibleLayers=aviation,transit,tipPoints,typPoints,tipLines,typLines&searchType=county&searchValue=10&showAoi=true>

Haine School-Commonwealth investment area is not yet identified on the TIP or STIP, however is included on local and county planning documents. Please see the statement from Butler County Economic Development and Planning Department that actions are underway to include Haine School-Commonwealth to the TIP. (See TIP action letter for Haine School-Commonwealth at: <http://www2.co.butler.pa.us/planning/financial/TIP.pdf>.)

## 3. FEDERAL TRANSPORTATION REQUIREMENTS AFFECTING STATE AND LOCAL PLANNING

In addition to demonstrating inclusion on the TIP and STIP, Gateway 228 aligns with local, regional and state Long-Range Transportation Plans' goals and objectives.

- PennDOT 2040 Long Range Transportation Plan (PA on Track) is centered on four goals for which Gateway 228 complies: System Preservation, Safety, Personal and Freight Mobility, and Stewardship.
- At the regional level, Gateway 228 adheres to SPC's 2015-2040 vision called Mapping the Future: The Southwestern PA Plan. Overall the Project coincide with the plan's transportation policies and goals framed within the following categories - Regional Places, Regional Connections, Regional Activities and Regional Strategies.
- The Project fits within the local transportation goals identified by the Butler County in its' Mobility Plan which incorporates the respective objectives of communities along the Corridor. The goals for the Butler County Mobility Plan met by Gateway 228 consist of:
  - Maintaining and improving existing transportation infrastructure to provide safe, convenient, and reliable circulation;

- Focusing on operations and safety collectively to improve countywide mobility and congestion for existing and future year conditions;
- Establishing and implementing new access management areas, connectors and marginal access roads to accommodate anticipated future year growth, development, and needs;
- Working with local, state, and federal officials to provide enhanced mobility through adequate infrastructure and congestion management projects with regional benefits;
- Encouraging multi-jurisdictional coordination to create partnerships and establish greater purpose and need of available funding opportunities;
- Enhancing connectivity and mobility through the maintenance and construction of interconnected streets, sidewalks, and trails, including safe bicycle and pedestrian access routes; and
- Improving first and last mile freight connections to ensure appropriate, safe, and reliable access to major corridors for businesses and the freight industry

#### **d. ASSESSMENT OF RISK AND MITIGATION STRATEGIES**

The two greatest risks on the Project as discussed by our team including Project engineers are unforeseen weather problems and funding shortfalls, both for which we have prepared. A cushion was built into the construction schedule to mitigate any delays that might put the Project up against BUILD's deadlines. This strategy safeguards the Project by incorporating nearly an extra construction season should disaster strike. Also built into the Project are sufficient bridge funds to cash flow the Project and withstand the duration between incurring expenses and submitting reimbursement requests to the BUILD program and receiving reimbursement. Our Project analyst is modeling scenarios using two non-federal sources - Butler County Infrastructure Bank and Pennsylvania Infrastructure Bank (PIB) – to determine the amount of bridge funds needed at any given point during the reimbursement process and which fund most effectively fills those gaps. (Please see District 10 Incident Management Plan at:

<http://www2.co.butler.pa.us/planning/standards/D10%20IMPlan%20Spec.pdf>; and

<http://www2.co.butler.pa.us/planning/standards/D10%20MPTSpec%20MIMP.pdf>)