2.0 History of the Project

Planned in the 1940s and built during the 1950s and early 1960s, the Cleveland Innerbelt was designed to move traffic around the south side of downtown (Figure 2-1). It was also intended to complement two existing freeways built in the 1930s – Memorial Shoreway (SR 2) and the Willow Freeway (I-77). The Memorial Shoreway extended 10 miles along Cleveland's lakefront north of the Central Business District (CBD) between Edgewater Park and Gordon Park. The Willow Freeway stretched along the eastside to the city of Independence in southern Cuyahoga County. The Innerbelt was designed to connect to Memorial Shoreway near East 30th Street, join with the Willow Freeway on the south side of downtown, and also link to a future freeway across the Cuyahoga River Valley to provide access to Cleveland Hopkins International Airport and points south.

Construction of the 3.24-mile Innerbelt began in December 1954 with groundbreaking for a new eight-lane, high-level bridge south of the Lorain-Carnegie Bridge, which would allow ships to navigate the Cuyahoga River without interruption. At the time of construction, this 5,079-foot long bridge, known as the Central Viaduct, was the widest in the state of Ohio. It began carrying traffic in August 1959. The second section of the Innerbelt, a new depressed roadway passing beneath the lakefront railroad tracks, opened in December 1959 between Memorial Shoreway and Chester Avenue. The center portion, connecting the Central Viaduct with the highway extension from the Shoreway opened in December 1961, although the last of the 37 access ramps for the Innerbelt was not available to carry traffic until August 1962.

The Innerbelt has been in use for 47 years, which exceeds its design life. Marked increases in traffic volumes have come with the addition of new highway sections and new development in downtown Cleveland and its surrounding neighborhoods. In 1959, 20,000 drivers a day used the Central Viaduct. This volume more than doubled to 42,700 vehicles a day in 1963 after the Innerbelt was completed between the Central Viaduct and SR 2.

The first section of I-90 opened on the west side of Cleveland from the Central Viaduct to West 41st Street in 1975, causing usage of the Innerbelt to increase to 119,500 vehicles per day. By 1990, more than 146,600 vehicles were using the Central Viaduct daily to cross the Cuyahoga River Valley. In 1991, I-490 opened between the I-71/I-90 interchange on the west side of the river and I-77 on the east through the Tremont neighborhood, diverting a portion of traffic from the Innerbelt. However, the Central Viaduct continued to carry 134,700 vehicles daily in 1991.

The decrease in traffic on the Innerbelt following the opening of I-490 was short-lived. Throughout the 1990s, new development occurred in downtown Cleveland and its surrounding neighborhoods. By 2000, an estimated 145,000 to 150,000 vehicles were using the Innerbelt each day, causing drivers to experience routine traffic congestion and longer travel times.

Figure 2-1: Cleveland Innerbelt Points of Interest

Reconstruction of the Innerbelt was considered by the Ohio Department of Transportation (ODOT) in the late 1990s. A major planning effort, named the Cleveland Innerbelt Study (the Study) was launched by ODOT, its consultant team, and the greater Cleveland community in 2000.

2.1 Purpose and Need

The Innerbelt Freeway provides access to and mobility through the City of Cleveland. Downtown Cleveland depends on the Innerbelt Freeway's ability to collect and distribute traffic between the radial freeway system and the local street system, as well as the Innerbelt Freeway's ability to interchange traffic between the radial freeways without using the local street system. During the morning peak period, the Innerbelt Freeway functions to collect traffic from the system of radial freeways and distribute that traffic to the local street system. During the evening peak period, the Innerbelt Freeway functions to collect traffic from the local street system and distribute that traffic to the system of radial freeways. The Innerbelt Freeway also moves traffic between each of the radial freeways, thus allowing through traffic to bypass the local street system. Thus, the limits of the Innerbelt Freeway and Corridor are defined primarily by the function of the facility. The Innerbelt Corridor is comprised of the Innerbelt Freeway, together with portions of the radial freeways and portions of the local street system. The limits of the Innerbelt Corridor (Figure 2-2) recognize the interrelationship between each of the components (Innerbelt Freeway, radial freeways, and local streets).

The infrastructure (bridge decks and roadway pavements) of the Innerbelt Freeway are approaching the end of their useful lives. Thus, there is a need to renew the infrastructure, to replace the bridge decks and to rehabilitate the roadway pavements, within the next ten years or as referred herein, "the anticipated renewal period". However, early on, given the need for a major renewal investment just to maintain the system in kind, the Cleveland Innerbelt Study identified, due to the function of the Innerbelt Freeway, a need to provide for the intelligent renewal of the transportation infrastructure. The term intelligent renewal refers not only to the need for renewal of the transportation infrastructure (physical condition), but also the need to address the performance (operation and safety) of the Innerbelt Freeway in recognition of the importance of the Innerbelt Freeway's role in providing for the safe and efficient movement of people, goods and materials to, from and through downtown Cleveland (access).

Operationally, during the AM and PM peak periods, the travel demand exceeds the capacity on portions of the Innerbelt Freeway. This results in a reduction in running speed, the queuing of traffic on the mainline of the freeway and the diversion of traffic from the freeway to the local street system. Moreover, crash rates on the Innerbelt Freeway are generally two to three times greater than the regional average for interstate highways (1.2 crashes per million vehicle miles traveled). Thus functionally the Innerbelt Freeway fails to perform adequately and, thus, the need for intelligent renewal.

Therefore, the purpose and need of the Cleveland Innerbelt Project is to provide for the intelligent renewal of the transportation infrastructure. This is specifically, to improve the physical condition (Section 3.1), safety (Section 3.2), and operational performance (Section 3.3) of the Innerbelt Freeway and to improve the access (Section 3.4) of the Innerbelt Freeway.

The draft *Purpose and Need* statement for the Innerbelt Study was developed in April 2003. It is available on the Project website at www.Innerbelt.org, and is incorporated herein by reference. The *Purpose and Need* for the Study as developed in April 2003 remains valid for the assessment of the Innerbelt Project Conceptual Alternatives. Refinement and updating of the Purpose and Need will occur prior to the Assessment of Feasible Alternatives to make it Project specific. Following is a summary of the *Purpose and Need* elements used in the assessment of the Conceptual Alternatives.

2.1.1 Physical Condition

The Innerbelt was planned originally by Cuyahoga County to be compatible with the Federal Interstate Highway System. Construction of the Central Viaduct Bridge began about two years prior to enactment of the federal law authorizing funding and construction of the Interstate system. The physical condition of major infrastructure of the Innerbelt Freeway - its bridge decks and roadway pavements - is nearing the end of its useful life. Regarding this basic infrastructure, absent all the other needs of the Innerbelt Freeway, there is a need to renew the infrastructure, replace the bridge decks, and rehabilitate the roadway pavements within the anticipated renewal period of approximately 10 years.

The physical condition of the Innerbelt Freeway was validated through observations made between 1999 and 2002. The substructures and superstructures of all 25 mainline and ramp bridges were determined to be in good condition and reusable. However, the bridge decks and pavement do need replaced prior to the end of their anticipated renewal period (2017). This was particularly true for the largest of the bridges, the 5,079-foot Central Viaduct Bridge, which has been in operation since 1959 and carries I-90 over the Cuyahoga River Valley. A 1997 inspection found major deficiencies in the Bridge deck and stringers, with replacement recommended by 2008. Because of extensive cracking and spalling discovered in that inspection, the ODOT concluded that the structure's useful life could be extended through application of a high-molecular weight sealant, which was authorized.

For roadway pavement, the primary measure of pavement condition used in this system is the Pavement Condition Rating (PCR). The PCR is a zero to 100 scale based on a visual inspection of the roadway surface. A 100 represents a perfect or new roadway with no observable distress and zero represents pavement with all types of distress present at high levels and extent. ODOT recommends minor rehabilitation of roadway pavement when the Pavement Condition Rating (PCR) falls below 75 and major rehabilitation when the rating falls below 55. All 3.8 million square feet of roadway pavement in the Project study area will fall below a PCR of 75 within 10 years.

Figure 2-2: Innerbelt Freeway and Corridor

2.1.2 Safety

From a safety standpoint, the initial standards used by designers of the Cleveland Innerbelt in the 1940s have changed substantially. As a result, there are numerous locations along the Innerbelt Freeway that do not meet current freeway standards. These deficiencies adversely affect safety and operational performance.

There are two locations where the basic number of freeway lanes are reduced improperly: northbound I-71 south of its merger with Jennings Freeway, and westbound I-90 at the interchange with SR 2. The basic number of freeway lanes may be reduced provided exit volume is sufficiently large beyond the reduction point on the freeway route as a whole. At both of these locations, the reductions caused severe congestion, sharply lower average running speeds, and crash rates about twice the regional average.

A second category of design deficiency involves the configuration of entrance and exit ramps, where inadequate lengths for acceleration, deceleration, weaving, and terminal spacing led to safety hazards. Many of these locations have been identified along the Innerbelt Freeway. A design deficiency in the Innerbelt Trench section, between East 22nd Street on the south and Superior Avenue on the north, is frequency and spacing of ramps. In the two-mile section between the Central Interchange and the I-90/SR 2 Interchange, there are seven service interchanges. ODOT design standards recommend minimum interchange spacing of one mile in urban areas. The current configuration of service interchange spacing severely limits the potential to improve operational performance and safety.

Finally, the curve radius of I-90 at SR 2 is less than the required minimum for a design speed of 55 mph. Drivers are warned by posted signs to reduce their speed to 35 mph along this section of I-90.

The Study established that there is a direct link between the system configuration, operational performance, and safety. Crash rates of up to four times the regional average were found along some sections of the Innerbelt. In addition, analysts found a very high frequency of rear-end crashes along the Innerbelt compared with regional averages, and attributed this anomaly to the inability of drivers to adjust their travel speed in response to recurring congestion.

For the crash analysis, freeway crash data was utilized from the Ohio Department of Public Safety (ODPS) database for the three-year period of 1997 through 1999 for the five-county NOACA region.

The average crash rate for the typical freeway section in northeast Ohio using the ODPS data is 1.2 crashes per million vehicle-miles (MVM). By way of comparison, the statewide urban Interstate average crash rate is 0.877/MVM. On average, nearly 18 percent of freeway crashes in the study area occur during the AM and PM peak periods (7 - 9 AM and 4 - 6 PM). Of those crashes, 44 percent were classified as severe (injury or fatal crashes).

According to data from the OPDS and NOACA, the most prevalent northeast Ohio freeway crash types during all periods and during peak periods were similar, as shown in Table 2-1.

Table 2-1: Percentage of most prevalent crash types during all periods and during peak period

Crash Type	All periods (percent)	Peak period (percent)
Rear-end	55	63
Sideswipe-passing	13	10
Fixed Object	11	8
Angle	8	9
Other	13	10

Crash rates were calculated for each section of the Innerbelt Freeway, and distinct differences were identified, primarily tied to three types of design deficiencies - improper reduction in the basic number of lanes; inadequate acceleration, deceleration, weave or terminal spacing lengths; and inadequate curve radius. Each of these deficiencies has direct and adverse impacts on the operational performance and safety of the Innerbelt Freeway. Figure 2-3 and Table 2-2 shows the crash analysis of the Innerbelt Corridor.

Table 2-2: Innerbelt Corridor Crash Analysis by Directional Flow

Map Key	Section	Freeway	LOS	Running Speed	Crash/MVM
N71	**Fulton to I-90/490**	**I-71 NB**	**F**	**21**	**2.18**
E90A	**I-71/I-490 to I-77**	**I-90 EB**	**F**	**34**	**2.76**
E90B	**I-77 to Payne**	**I-90 EB**		**43**	**3.06**
E90C	**Payne to Shoreway**	**I-90 EB**		**54**	**2.44**
N77	**I-490 to I-90**	**I-77 NB**	**F**	**15**	**3.29**
S77	**I-90 to I-490**	**I-77 SB**	**E**	**29**	**6.07**
W90C	**Innerbelt Shoreway**	**I-90 WB**	**F**	**27**	**2.37**
W90B	**Payne to I-77**	**I-90 WB**	**F**	**30**	**3.24**
S71	**I-90/I-490 to Fulton**	**I-71 SB**		**52**	**1.68**
W90A	**I-77 to I-71/I-490**	**I-90 WB**	**F**	**42**	**5.49**
S176	Harvard to I-71	SR176 EB		N/A	0.06
N176	Harvard to I-71	SR176 WB		N/A	0.22
E490	West 7th Street to I-71	I-490 EB		N/A	0.54
W490	**West 7th Street to I-71**	**I-490 WB**		**N/A**	**1.12**

Bolded rows are sections that exceed the statewide average (0.877/MVM).

Figure 2-3: Innerbelt Freeway 1997 – 1999 Crash Analysis Sections

2.1.3 Operational Performance

Operational performance of a transportation facility is quantified by Level of Service (LOS), a measure developed in 1965 by the Transportation Research Board's Committee on Highway Capacity and Quality of Service and defined in its *Highway Capacity Manual.* The *Manual* is revised periodically to reflect new and updated research. During the past 40 years, LOS has become the standard adopted worldwide for determining the adequacy of transportation facilities.

LOS can be computed for almost any type of transportation facility or any mode, including traffic along a specific section of roadway, an intersection of major streets, and even pedestrian traffic across an intersection. LOS calculations result in letter grades (Table 2-3) between A (best) and F (worst), as determined by thresholds set by the Transportation Research Board and published in its *Highway Capacity Manual*. Today the ODOT standard for the LOS on Interstate freeways is C. However, the NOACA established the goal that an LOS of D is the highest level of service practical for urban freeways in this region of Ohio and is to be considered acceptable.

Table 2-3: Level of Service

Level of Service	Basic Freeway density in passenger cars / mile / lane	Description
A	0 - 11	Free flow, with little or no restriction on speed or maneuverability; speeds at or above posted limits
B	11 - 18	Stable flow and operating speed is beginning to be restricted; speeds are at or above posted limits
C	18 - 26	Stable flow, and drivers are becoming restricted in their freedom to select speed, change lanes, or pass; speeds are mostly at posted limits.
D	26 - 35	Approaching unstable flows where tolerable operating speeds are maintained but subject to considerable and sudden variation. This level of service is becoming more acceptable for most urban areas during the peak hours
E	35 - 45	Unstable flow where uninterrupted speeds are well below posted limits with rapid variation in speed
F	> 45	Forced flow with speeds below LOS E that drop for short periods to zero

A LOS analysis for a roadway rates a motorist's ability to maneuver in a traffic stream. On a freeway, for example, LOS is determined by density, a measure of passenger cars per mile per lane, speed of the vehicles, and a volume-to-capacity ratio.

The growth in the total number of person trips within the region is expected to be a modest 2.5 percent between 2000 and 2025. It must be emphasized that 2.5 percent represents the total growth over the entire 25-year period and not an annual growth rate.

The growth in Vehicle Miles of Travel (VMT) within the Innerbelt Corridor is expected to be 4.2 percent during the entire 25-year period. The Vehicle Hours of Travel (VHT) is expected to grow by 6.6 percent from 71,000 VHT in 2000 to 75,700 VHT in 2025. The Vehicle Hours of Delay (VHD) is expected to increase by 26 percent from 8,600 VHD in 2000 to 10,800 VHD in 2025. The majority (74 percent) of the increase in VHT is the result of increased congestion. Because the Innerbelt Freeway operates at or near capacity, even a modest increase in travel (VMT) causes a disproportionate increase in delay (VHD).

Substantial congestion in the project area occurs at the east end of the Central Viaduct Bridge. The traffic volumes at the Ontario Street and East 9th Street exit ramps, combined with the downtown intersection congestion at Ontario Street/Carnegie Avenue and East 9th Street/Carnegie Avenue causes backups onto I-90 on the right two lanes.

At two locations, congestion will become so severe that bottlenecks occur. The congestion (during the AM peak hour by 2025) is so severe on the two lanes of I-71 northbound through the I-71/I-90/I-490 interchange that this bottleneck effectively limits the number of vehicles that can get through. Consequently, after the I-71/I-90 merge where the roadway becomes four lanes, the roadway operation is projected to actually improve to LOS D from LOS F in 2025, as would the Carnegie Avenue intersections operations mentioned above. Although congestion on I-90 eastbound appears to improve, in actuality the congestion, because of the bottleneck, now occurs farther upstream at the Jennings Freeway merge and continues south on I-71 to Fulton Road. Moreover as traffic queues up in this area vehicles exit I-71 to West 14th Street, cut through the Tremont neighborhood and then reenter I-71 northbound from West 14th Street north of Fairfield Road.

Another bottleneck is forecast to occur during the PM peak hour in 2025 due to severe congestion in the Central Interchange that will limit the number of vehicles using that facility. In general, more traffic is approaching the Central Interchange than the interchange can handle. Consequently, the LOS of I-90 westbound south to the Central Interchange will improve to LOS D from LOS F. This is a severe congestion phenomenon and, if the Central Interchange was fixed, that section of I-90 would revert to an LOS F.

Maintenance of Traffic Considerations

The daily recurring congestion presents a tremendous challenge to the efforts to renew the transportation infrastructure. The following discussion is provided to illustrate the magnitude of the challenge:

- A freeway operating at an LOS D provides limited freedom to maneuver. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
- A freeway operating at the lower boundary of LOS E provides virtually no usable gaps in the traffic stream. At capacity, the traffic stream has no ability to dissipate even the most minor disruptions, and any incident can be expected to produce a serious breakdown with extensive queuing.
- LOS F describes breakdown in vehicular flow.
- During the AM and PM peak periods, extensive portions of the Innerbelt Freeway operate at LOS D or below. Under normal operating conditions (all lanes open and available) the traffic stream has little or no ability to dissipate even minor disruptions. The entire length of the corridor lacks adequate median shoulders. The Central Viaduct Bridge also lacks adequate outside shoulders. Thus there is little or no opportunity to utilize the shoulders to supplement the capacity of the Innerbelt Freeway. These challenges necessitate the development of a comprehensive strategy for the

systematic renewal of the transportation infrastructure that will minimize the disruption caused by construction activities.

2.1.4 Access

Access refers to the relative ease by which the locations of activities, such as work, health care, education, shopping and recreation, can be reached from another location. The Innerbelt Freeway provides access to the Central Business District (CBD) and the various residential neighborhoods and commercial/industrial areas immediately adjacent to downtown Cleveland.

Trench Access Issues

The 2-mile section from the Central Interchange to the Lakefront Interchange (SR 2) provides access to Broadway Avenue/Ontario Street, East 9th Street, East 14th Street, East 18th Street, East 22nd Street, Carnegie Avenue, Prospect Avenue, Chester Avenue, Superior Avenue, St. Clair Avenue and Lakeside Avenue, through a series of service interchanges, containing a total of 11 exit ramps and 12 entrance ramps. This does not include the eight freeway-to-freeway ramps within the two system interchanges, or the 10 service interchange ramps serving the I-77 leg of the Central Interchange.

If the East 14th Street/East 18th Street, Carnegie Avenue/Prospect Avenue and Superior Avenue/St. Clair Avenue pairs are considered as single interchanges, then there is a total of seven service interchanges within this 2-mile section of freeway. This equates to an average interchange spacing of slightly more than one-quarter mile. These closely spaced interchanges enable the Innerbelt Freeway to function as a local roadway connector within this 2-mile section. The ODOT Design Manual recommends a minimum interchange spacing of one mile in urban areas. The actual spacing should be determined by weaving requirements, required lengths of speed change lanes and the capacity of the freeway mainline. As concluded in the previous discussion on design deficiencies, acceleration, deceleration, weave and terminal spacing lengths are inadequate and adversely affect the operational performance and safety of the Innerbelt Freeway. The ability to eliminate these design deficiencies, and thus the ability to improve the operational performance and safety of the Innerbelt Freeway, is a function of the service interchange spacing. Expressed another way, the current average service interchange spacing of one-quarter mile severely limits the potential to improve freeway operational performance and safety. The high number of access points actually decreases the level of access by degrading the operational performance and safety of the Innerbelt Freeway. Thus, there is a need to balance the number of access points with the demand for access and the ability of the mainline freeway to safely and efficiently accommodate traffic streams.

There also is a need to preserve the local roadway connectivity function of the Innerbelt Freeway and provide continued access and mobility to the CBD, adjacent neighborhoods, and commercial/industrial areas with the rebalancing of access. Expressed another way, there is a need to separate and preserve the local and interstate traffic functions within this 2-mile section to improve safety and operations on each element of the roadway system.

Other Access Issues

The Innerbelt Freeway also provides critical, indirect access to the Industrial Valley, the Flats, the University Circle area, and the Lakeside Industrial area which are areas of traffic demand and importance to both the city and the region.

The Industrial Valley area (Figure 2-1) occupies the Cuyahoga River Valley immediately south of downtown Cleveland and generally between I-77 and I-71/I-90. Interstate I-490 passes above the Industrial Valley. The Flats area occupies the Cuyahoga River Valley immediately west of downtown and north of I-90. Access to the Industrial Valley requires that all vehicles, including heavy trucks, travel through local neighborhood streets and through some of the most highly congested intersections in the City of Cleveland. Access to the Industrial Valley is currently provided as follows:

To reach SB I-71 or SR 176 from the southern portion of the Industrial Valley, traffic must enter NB SR 176, then exit to West 14th Street, then reenter either SB I-71 or SB SR 176.

To reach the Industrial Valley, vehicles, including heavy trucks exiting from I-71 and SR 176, must travel through the Tremont neighborhood on West 14th Street and Clark Avenue. Moreover on the return trip vehicles emerging from the Industrial Valley follow Clark Avenue to West 14th Street, past the ramps from NB I-71and NB SR 176, and travel over the mainline of I-71 to access SB I-71 and SB SR 176.

To reach the Industrial Valley from the Central Interchange, vehicles exit from EB I-90 follow NB Broadway Avenue/Ontario Street, to Carnegie Avenue, to Commercial Road. Moreover vehicles emerging from the Industrial Valley follow Commercial Road, to Carnegie Avenue, to Broadway Avenue/Ontario Street, to access WB I-90 and SB I-77. Within the same combination system and service interchange, access to and from I-77 is also provided. This interchange provides access from NB I-77 to NB Broadway Avenue/Ontario Street via SB East 14th Street and from SB Broadway Avenue/Ontario Street directly to SB I-77. Vehicles exiting from NB I-77 follow SB East 14th Street to NB Broadway Avenue/Ontario Street, to Carnegie Avenue, to Commercial Road, in order to access the Industrial Valley.

Thus there is a need to maintain and improve access to and from the Industrial Valley to address current and future access demand.

The University Circle area, second only to the CBD of Cleveland as a regional employment center with over 30,000 jobs, is located 4 miles east of the Central Business District, as indicated on Figure 2-1. Access between the Innerbelt Freeway and the University Circle area is provided at the I-90 and Carnegie Avenue/Prospect Avenue interchange and at I-90 and Chester Avenue interchange. While no University Circle access problems are associated with this pair of interchanges, access to the area requires travel through the most heavily congested portions of the regional freeway system. Moreover it is important to note that the Carnegie Avenue, Prospect Avenue and Chester Avenue interchanges do not provide access to the Central Business District from EB I-90. Access is directed towards University Circle. Thus there is a need maintain and improve access to and form the University Circle area to address current and future access demand.

The Lakeside Industrial area is an industrial area bounded approximately by Superior Avenue on the south, I-90 on the north, East 18th Street on the west and East 82nd Street on the east. Access to the area is provided by the full Superior Avenue interchange and the partial movements at the Lakeside and St. Clair Avenue interchanges. The geometrics of the Lakeside and St. Clair Avenue interchanges are so deficient that they do not appropriately serve the commercial truck traffic in the area. Thus there is a need to improve upon the access to and from the Lakeside Industrial area.

Arterial Corridors
The City of Cleveland's CBD has no clear street system hierarchy in place. Typically, traffic should be collected on minor roadways, moved to larger roadways, and carried to the freeway. From smallest to largest, these roadways are: collector/distributor, minor arterial, major arterial, boulevard and freeway. The street grid should function much like a river and its tributaries. Approximately 85 percent of the traffic using the Innerbelt Freeway has a destination within the study area during the AM peak period or an origin within the study area during the PM peak period. Because of this unique travel pattern, the interrelationship and connection between the city street grid and the Innerbelt Freeway becomes even more crucial.

To effectively move traffic to and from the Innerbelt Freeway and to improve safety, the most critical access points were identified during the development of the Innerbelt Study based upon existing traffic volumes, redundancy of access, operations, and land use of the area served. While it is beyond the scope of this project to address the existing operational problems on the city street system, there is a need to maintain or improve the access to and from the CBD and the Innerbelt Freeway.

Tremont Access
Operationally the Tremont neighborhood of Cleveland is served by a split diamond interchange with one half located on the south end of the neighborhood by the SR 176/Jennings and IR 71 merge and the other at Abby/West 14th on the southern end of the Central Viaduct Bridge. While the southern half of the interchange was discussed above as it relates to its servicing the Industrial Valley demand, it is also important to discuss the northern half and what it means to Tremont neighborhood. The existing pattern of redevelopment within the Tremont and Ohio City neighborhoods has taken advantage of the access to and from the CBD that this northern half of the interchange provides. Further, inside the interchange, local roadway connections are provided that directly connect the Tremont and Ohio City neighborhoods. Ease of access has enabled the development of a large concentration of in-fill housing, restaurants and businesses that cater to CBD workers. Abbey Avenue provides access to the businesses and attractions (e.g. West Side Market) in Ohio City for both CBD and Tremont oriented travelers. For example, the closest grocery store for both CBD and Tremont residents is in Ohio City. Loss of connectivity to these important resources would be inconsistent with the current development patterns. Thus, in order to maintain the viability of the existing development and foster additional development, there is a need to maintain this access point**.**

Summary
The transportation needs and demands associated with access must be addressed to ensure the Innerbelt Freeway's continued ability to provide for the safe and efficient movement of people, goods and materials to, from and through downtown Cleveland. While the function of the Innerbelt Freeway is to move traffic, the purpose of the Innerbelt Freeway is to serve the community. There is a need to improve access of the Innerbelt Freeway. Moreover, specifically there is a need to balance the number of access points with the demand for access while providing for mainline freeway and local street system safety and operational efficiency.

2.2 Strategic Plan

The Cleveland Innerbelt Study, which began in 2000, culminated in 2004 with adoption of a comprehensive strategy to rebuild the major highway corridor, including reconstruction of portions of I-71, I-77, and I-90 into downtown Cleveland. The final product of the Study, the *Cleveland Innerbelt Strategic Plan*, was adopted in July 2004. The *Strategic Plan* examined issues of priority together with timing or phasing for implementation. It also identified the Design Concept and Scope (Figure 2-4) elements which were advanced to Step 5 of the PDP. Similar to other planning recommendations, the Project was divided into separate, smaller projects for construction and / or funding.

This Plan began with adoption of the *Strategic Plan* by the Innerbelt Scoping Committee in February 2004. Three months later, the Ohio Transportation Review Advisory Committee (TRAC) announced its funding commitments through 2010, including funds for reconstruction of the Innerbelt Curve, the East 55th Street railroad bridge, and reconstruction of the West 14th Street interchange from I-71 and Jennings Freeway with a connector to Quigley Road in the Cuyahoga River Valley. In July 2004, the executive board of the Northeast Ohio Area Coordinating Agency (NOACA) amended its Transportation Plan and Transportation Improvement Plan to include reconstruction of the Innerbelt.

In mid-May 2005, ODOT's TRAC released its 2006-2011 funding commitments and included Tier I funds for:

- Completion of Steps 5-8 of the Project.
- Innerbelt Curve.
- East 55th Street (item J on Figure 2-4).
- Quigley Road Connector (a portion of item C on Figure 2-4).
- Central Viaduct Bridge and Southern Innerbelt.
- Innerbelt Trench.
- Intelligent Transportation System and Freeway Management System.

It was determined that the best approach to implementing the funded elements of the *Strategic Plan* was to separate them into logical projects based on independent utility. The first of these became the Quigley Road Connector Project. This project focused on the project development, design and construction of a portion of the Cuyahoga River Valley Consolidated Intermodal Connector (Item C-this portion is circled on Figure 2-4). A further portion of the Intermodal Connector that extends from the eastern termini of the Quigley Road Connector south to Harvard Road is currently being constructed as part of the Steelyard Commons development project and is funded by the developer. Both of these projects will be constructed concurrently.

The next logical project centered on the work identified as Item J on Figure 2-4, the East 55th Street railroad bridge replacement. This item was identified as a Maintenance of Traffic improvement as part of the development of the Strategic Plan.

The next project became the Opportunity Corridor Project. This project focused on development of the University Circle Access Boulevard (Item K).

A further project became the Cuyahoga River Valley Intermodal Connector which focused on the development of the remaining portions of the Intermodal Connector (Item C). This includes the West Bank Connector, the rehabilitation of Quigley Road and West 3rd Street and the potential for a new, low-level river crossing (Item C2).

The Park and Ride expansions that were identified in the Strategic Plan were adopted by the Greater Cleveland Regional Transit Authority (GCRTA) and are under development. The Intelligent Transportation System has been made part of the regional ITS plan and will be implemented under that project.

Project development for several other items listed in the Strategic Plan were grouped into the Cleveland Innerbelt Plan—the project that is discussed within this Conceptual Alternatives Study. The development of the Strategic Plan recommendations regarding the reconfiguration of the collector-distributor roadways (Item A), the Southern Innerbelt Improvements (Item B), the portion of the Intermodal Connector that connects West 3rd Street up Commercial Road Hill into the Central Interchange area (portion of Item C), the reconstruction of the I-490/West 7th Street interchange (Item C1), the rehabilitation or replacement of the Central Viaduct Bridge (Item D), the reconfiguration of the I-77 access (Item E), the reconstruction of the Central Interchange (Item F), the reconfiguration of the Innerbelt Trench (Item G) and the reconfiguration of the Innerbelt Curve (Item H) were included in the Cleveland Innerbelt Plan. A summary listing of the improvements considered as part of each of these components is listed below:

- **Innerbelt Curve**
  - Flatten I-90 mainline curve
  - Add one westbound lane to I-90 within interchange
  - Reconstruct I-90/SR 2 interchange
  - Convert system interchange to service interchange
  - Construct East 40th Street overpass
- **The Trench**
  - Consolidation of access
  - Freeway ramp connections at Chester Avenue and Superior Avenue
  - Frontage road system between Chester Avenue and St. Clair Avenue
- **Central Interchange Reconstruction/I-77 Access**
  - Central Interchange
    - Separation of system and service movements
    - Consolidation of access
    - Access provided to Ontario Street, East 9th Street, and East 18th Street
    - I-77 northbound to I-90 westbound and I-90 eastbound to I-77 southbound movements redirected to I-490/I-77 interchange
  - I-77 access
    - Separation of system and service movements
    - Consolidation of access
    - I-77 access in Central Interchange redirected to Orange and Woodland Boulevards
- **Central Viaduct Bridge**
  - Add one lane in each direction to I-90
  - Minimum inside shoulder
  - Full outside shoulder
  - Existing or new bridge
  - Existing or parallel alignment
- **Southern Innerbelt Improvements**
  - Add one northbound mainline lane to I-71 between Jennings Freeway and I-90
  - Add one lane in each direction on I-90 between I-71 and the Central Viaduct Bridge
- **Collector-Distributor Roadway**
  - Relocate the C-D roadway between Fulton Road and West 25th Street at the same grade as and adjacent to mainline I-71
- **West 7th Street Interchange**
  - Develop a full interchange

The current phase of development of the Project is in Steps 5 through 8 of ODOT's PDP for major projects and will conclude in mid 2007. To guide the Project, an expanded Advisory Committee was formed. The role of the Advisory Committee, along with the on-going public involvement process integral to the Project, is discussed in more detail in Chapter 3.

Local street improvements required as a result of changes to the freeway will be included within the Cleveland Innerbelt project. The Priority Corridor System (Item I) as identified in the Strategic Plan would involve substantial modifications to the city street system to change the character and function of the priority routes. This upgrade of the city street system would have an independent function and utility from that of the Cleveland Innerbelt Project. This concept has not been advanced by the city or MPO.

Figure 2-4: Recommended Design Concept and Scope