

### **Alternative A:**

This alternative combines an alignment for the relocated North Valley Road that was developed previously for the SEPTA study and a realigned single-lane roundabout configuration at the North Valley Road and Central Avenue intersection that was previously developed in the Township Feasibility Study. Under this configuration, the relocated North Valley Road crosses the railroad tracks on a skew and then curves sharply to intersect with North Valley Road at an approximate 90 degree angle. In this alternative, the old North Valley Road T's into the relocated North Valley Road/Bracken Avenue and a channelized right turn has been provided for the relocated North Valley Road right turn movement onto North Valley Road. The relocated North Valley Road intersects with Lancaster Avenue at the existing Darby Road terminus and provides one through lane and dedicated left and right turn lanes.

#### Advantages:

- Provides more developable land for the Station Square Redevelopment than Alternatives C through E.
- Is compatible with Phase 1 improvements that are currently under construction.
- Matches existing grades slightly better than other alternatives.
- Eliminates the offset intersection between East and West Central Avenues.
- Received more community support than the realigned signalized alternative and offset signalized intersection alternative in the Township Feasibility Study.
- Directs more non-local traffic through the railyard development and reduces impacts to West Central Avenue.

#### Disadvantages:

- Creates a stop condition for the north-south movements at the North Valley Road and the relocated North Valley Road/Bracken Ave intersection.
- Alters North Valley Road southbound thru movement to a left turn movement onto the relocated North Valley Road.

A conceptual drawing of Alternative A is included on the following page.

### **Alternative B:**

This alternative is similar to Alternative A with the primary difference being a realigned signalized intersection at the North Valley Road and Central Avenue intersection instead of a roundabout. Left turn lanes are provided on all approaches to the traffic signal and a dedicated right turn lane is also provided for the northbound North Valley Road approach. The relocated North Valley Road intersects with Lancaster Avenue at the existing Darby Road terminus and provides one through lane and dedicated left and right turn lanes.

Under Alternatives A through D, the old North Valley Road/relocated North Valley Road/Bracken Avenue intersection is analyzed as a signalized intersection in Design Year 2040, but would not require signalization at opening year. A phased traffic signal warrant would be completed during the design phase to determine when a traffic signal would be required at the intersection.

#### Advantages:

- Provides more developable land for the Station Square Redevelopment than Alternatives C through E.
- Is compatible with Phase 1 improvements that are currently under construction.
- Matches existing grades slightly better than other alternatives.
- Eliminates the offset intersection between East and West Central Avenues.
- Directs more non-local traffic through the railyard development and reduces impacts to West Central Avenue.

#### Disadvantages:

- Creates a stop condition for the north-south movements at the North Valley Road and relocated North Valley Road/Bracken Ave intersection.
- Alters North Valley Road southbound through movement to a left turn movement onto the relocated North Valley Road.
- Requires more right-of-way than Alternative A in order to develop turn lanes that are necessary to accommodate queued vehicles between closely spaced intersections.

A conceptual drawing of Alternative B is included on the following page.

### **Alternative C:**

This alternative maintains the alignment of the relocated North Valley Road over the railroad tracks as developed in the SEPTA study and continues the alignment on a similar skew towards the realigned single-lane roundabout configuration at the North Valley Road and Central Avenue intersection that was previously developed in the Township Feasibility Study. An S-curve is required along the relocated North Valley Road in order to obtain proper deflection prior to entering the roundabout. Bracken Avenue T's into the relocated North Valley Road/old North Valley Road in this alternative. Dedicated left and right turn lanes are provided along the relocated North Valley Road and North Valley Road for the turns onto Bracken Avenue. The relocated North Valley Road intersects with Lancaster Avenue at the existing Darby Road terminus and provides one through lane and dedicated left and right turn lanes.

#### Advantages:

- Is compatible with Phase 1 improvements that are currently under construction.
- Maintains Bracken Avenue as the minor street teeing into North Valley Road/relocated North Valley Road.
- Maintains North Valley Road as a main through movement, where Alternatives A, B and E do not.
- Eliminates the offset intersection between East and West Central Avenues.
- Provides similar improvements at the intersection of North Valley Road and East Central Avenue/West Central Avenue to Alternative A, which received more community support than the realigned signalized alternative and offset signalized intersection alternative in the Township Feasibility Study.

#### Disadvantages:

- Provides less developable land for the Station Square Redevelopment than Alternatives A & B.
- Does not provide relief to West Central Avenue cut through traffic volumes by creating a natural route through the Rail Yards Development (spine road/Bracken Avenue)

A conceptual drawing of Alternative C is included on the following page.

### **Alternative D:**

This alternative is similar to Alternative C with the primary difference being a realigned signalized intersection at the North Valley Road and Central Avenue intersection instead of a roundabout. The “S”-curve is maintained on relocated North Valley Road in this alternative to align with the north leg of the intersection. Left turn lanes are provided on all approaches to the traffic signal and a dedicated right turn lane is also provided for the northbound North Valley Road approach. Relocated North Valley Road intersects with Lancaster Avenue at the existing Darby Road terminus and provides one through lane and dedicated left and right turn lanes.

#### Advantages:

- Provides more developable land for the Station Square Redevelopment than Alternative E.
- Is compatible with Phase 1 improvements that are currently under construction.
- Maintains Bracken Avenue as the minor street teeing into North Valley Road/relocated North Valley Road.
- Maintains North Valley Road as a main through movement, where Alternatives A, B and E do not.
- Eliminates the offset intersection between East and West Central Avenues.

#### Disadvantages:

- Provides less developable land for the Station Square Redevelopment than Alternatives A & B.
- Requires more right-of-way than Alternative C (roundabout) in order to develop turn lanes.
- Does not provide relief to West Central Avenue cut through traffic volumes by creating a natural route through the Rail Yards Development (spine road/Bracken Avenue)

A conceptual drawing of Alternative D is included on the following page.

### **Alternative E:**

In this alternative, the relocated North Valley Road crosses over the railroad tracks at a roughly perpendicular angle and continues straight to intersect with East Central Avenue opposite Fennerton Road. In order to align the bridge perpendicularly with the tracks, the skew of the relocated North Valley Road with Lancaster Avenue and Darby Road is increased. The North Valley Road and West Central Avenue/East Central Avenue intersection would not be realigned under this alternative. A cul-de-sac would be installed on East Central Avenue prior to North Valley Road to eliminate the offset through movement to West Central Avenue at the intersection. Bracken Avenue would be extended to create a new intersection at relocated North Valley Road. Roundabouts are proposed at the East Central Avenue and relocated North Valley Road/Fennerton Road intersection and at relocated North Valley Road/Bracken Avenue intersection. Relocated North Valley Road intersects with Lancaster Avenue at the existing Darby Road terminus and provides one through lane and dedicated left and right turn lanes.

#### Advantages:

- Requires shortest bridge span length.

#### Disadvantages:

- Is not compatible with all of the Phase 1 improvements and would require the relocation of two major catenary structures placed in Phase 1.
- Eliminates the connection of East Central Avenue with West Central Avenue.
- Continuing from East Central Avenue to West Central Avenue would require traversing four intersections compared to one intersection in Alternatives A through D.
- Provides least amount of developable land for the Station Square Redevelopment.
- Requires more displacements than Alternatives A through D.
- Requires a greater skew between Darby Road and relocated North Valley Road than Alternatives A through D.
- The relocated North Valley Road/Bracken Avenue roundabout requires a northbound through “bypass” lane to reduce queueing and improve delay.
- Queueing problems will occur between the closely spaced signalized intersection at North Valley Road and Bracken Avenue and the roundabout at relocated North Valley Road/Bracken Avenue.

A conceptual drawing of Alternative E is included on the following page.