FIGURE # 2.7 Level of Service – Existing Conditions
Location: Cumberland County, PA

LEGEND

A(B) Signalized Intersection Overall Level of Service AM (PM)
B(C) Unsignalized Intersection Lowest Approach Level of Service am (pm)

MATCH TO INSET
MATCH TO NEXT SHEET
MATCH TO ABOVE
Figure #2.8: Level of Service - Existing Conditions

Location: Cumberland County, PA

Legend:
- A: Signalized Intersection Overall Level of Service
- d: Unsignalized Intersection Lowest Approach Level of Service
2. O-D Study

An Origin–Destination (O-D) study was conducted within the CLASH study area to better understand the existing travel patterns.

Initially, the O-D study was to be conducted at a limited number of signalized intersections (namely Trindle Road and St. John's Church Road (#9) and Simpson Ferry Road and St. John's Church Road (#15)) to be cost-effective and to assure the safety of the motorist and surveyors. It was also assumed that the survey would be conducted from 6:00 AM to 10:00 AM and 1:00 PM to 6:00 PM on Thursday, May 31, 2007 from 7:00 AM to 12:00 PM and 1:00 PM to 6:00 PM. The focus of this study was to collect data on both commuter and commercial vehicle travel.

Concerns arose regarding the quality of data obtained. It was noted that drivers do not always know the street name, roadway name, or travel information to directly answer the survey questions. Minimal room available to stop vehicles along the shoulder; in some cases no shoulder is available.

Safety concerns over having surveyors along the roadway with the combination of narrow lanes and high truck traffic. Concern with driver frustration and in-cooperation; as the study area is already congested people may view the survey as an intolerable delay.

Minimum survey capture rate. It was estimated even if each surveyor interviewed 4 vehicles an hour, not even 1% of the traffic volume would be captured.

Minimum survey capture rate for truck traffic. Due to the constrained survey locations, driver cooperation, and survey rate; only a small fraction of truck traffic would be captured.

In working with the West Shore Tax Bureau, zip code information was obtained that could be used to determine how commuters, generally automobile traffic, are accessing the study area. This data was applied using GIS to determine how commuters, generally automobile traffic, are accessing the study area.

With this additional information, a new approach was proposed to complete the O-D study. The approach focused on truck travel patterns. In order to collect this information, a vehicle following method was proposed. Data collection occurred on May 31, 2007 from 7:00 AM to 12:00 PM and 1:00 PM to 6:00 PM. The trucks were followed from the point that they entered the network until they reached their destination. Vehicles were also followed from the point that they exited the network into the Industrial Park Drive and Railroad Avenue area. The data collection continued with existing truck traffic through the network, including trucks that enter and exit Industrial Park Drive and Railroad Avenue. The data collection continued with existing truck traffic through the network, including trucks that enter and exit Industrial Park Drive and Railroad Avenue.

In planning the O-D study, several concerns arose.
Figure 2.9: Percent Traveling into Study Area Based on Zip Codes

Number of Employees Traveling into the CLASH Study Area

- 0 - 1000
- 1001 - 3000
- 3001 - 5000
- Study Area Boundary

1 inch equals 3.5 miles
Existing Conditions

US 15 or PA 581. In both cases, their direction along US 15 and PA 581 was noted. In addition to noting the truck travel path, general information about the truck was noted and approximate travel times were recorded.

Using a survey of this type, a large quantity of detailed information about the movement of freight within the study area and their ultimate destination outside of the study area. A total of 5 trucking companies were called, and their ultimate destination outside of the study area was obtained.

3. Truck Company Interviews

3.1 Truck Company Interviews

Figures 2.10 and 2.11

Using a survey of this type, a large quantity of detailed information about the movement of

 FREIGHT TRAVELING WITHIN THE STUDY AREA

...
FIGURE #2.10 O-D Link Volumes

Existing Conditions
Location: Cumberland County, PA

LEGEND
- Study Intersection Signalized
- Study Intersection Unsignalized

MATCH TO INSET
FIGURE #2.11 O-D Link Volumes
Existing Conditions
Location: Cumberland County, PA

Legend:
- Study Intersection Signalized
- Study Intersection Unsignalized
The intersection analysis utilized the methodology established in the 2000 Highway Capacity Manual (HCM) that describes the operation of intersections controlled by traffic signals. Synchro 6.0 (Build 614) software was used to apply the general HCM methodology and to derive the level of service (LOS) at each intersection.

As per PennDOT Strike-Off Letter 470-04-02, Synchro software is recognized and supported by the Department. The study team discussed the use of this analytical tool and agreed that it is appropriate to analyze the corridor as Synchro can effectively model and simulate the effects of vehicles queuing, the interaction between closely spaced signals, and the signals operating in coordination.

Table 2.2 summarizes the overall intersection results. The 16 signalized intersections in the corridor were analyzed. An overall intersection LOS of D or better is generally desirable for a signalized intersection in an urban area. Although LOS of D is acceptable, a LOS of E is acceptable for areas that experience heavy congestion peak periods. The LOS at signalized intersections ranges from A to F. An overall intersection LOS of D or better is generally desirable for a signalized intersection in an urban area. Although LOS of D is acceptable, a LOS of E is generally acceptable for areas that experience heavy congestion peak periods.

The LOS at signalized intersections is defined in terms of delay in terms of delay, delay is a measure of the average delay per vehicle for the peak 15-minute analysis period. The LOS for signalized intersections is defined in terms of delay, delay is a measure of the average delay per vehicle for the peak 15-minute analysis period.
### Table 2.2 – Existing Overall Intersection LOS and Delay Summary

<table>
<thead>
<tr>
<th>Node Name</th>
<th>AM Delay</th>
<th>AM LOS</th>
<th>PM Delay</th>
<th>PM LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carlisle Pike &amp; Van Patton Rd.</td>
<td>19.7 B</td>
<td>18.5 B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; PA 581 off-ramp</td>
<td>36.8 D</td>
<td>126.6 F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Sporting Hill Rd.</td>
<td>55.7 E</td>
<td>63.1 E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; St. John's Church Rd.</td>
<td>24.3 C</td>
<td>26.7 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Orr's Bridge Rd.</td>
<td>27.7 C</td>
<td>26.7 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Central Blvd.</td>
<td>22.8 C</td>
<td>38.2 D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; 32nd St.</td>
<td>52.6 D</td>
<td>182.7 F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trindle Rd. &amp; Sheely Lane</td>
<td>35.0 C</td>
<td>36.1 D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trindle Rd. &amp; Sporting Hill Rd.</td>
<td>18.3 B</td>
<td>21.2 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trindle Rd. &amp; Railroad Ave.</td>
<td>31.3 B</td>
<td>34.5 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trindle Rd. &amp; Wesley Dr.</td>
<td>42.3 D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simpson Ferry Rd. &amp; Sheely Ln.</td>
<td>198.5 F</td>
<td>206.9 F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simpson Ferry Rd. &amp; Wesley Dr.</td>
<td>42.3 D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gettysburg Rd. &amp; Wesley Dr.</td>
<td>23.6 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gettysburg Rd. &amp; Locust St.</td>
<td>16.7 B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simpson Ferry Rd. &amp; St. John's Church Rd.</td>
<td>77.9 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trindle Rd. &amp; 32nd St.</td>
<td>13 F</td>
<td>206.9 F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trindle Rd. &amp; 32nd St.</td>
<td>198.5 F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Central Blvd.</td>
<td>22.8 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Central Blvd.</td>
<td>22.8 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Orr's Bridge Rd.</td>
<td>27.7 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Orr's Bridge Rd.</td>
<td>27.7 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Orr's Bridge Rd.</td>
<td>27.7 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Orr's Bridge Rd.</td>
<td>27.7 C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carlisle Pike &amp; Orr's Bridge Rd.</td>
<td>27.7 C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- HCM Delay and Level-of-Service values are for the overall intersection, as generated by Synchro v.6, Build 614.
- Delay is expressed in terms of "seconds per vehicle".
- Existing land use information is based on the land use GIS mapping obtained from the Cumberland County. The land use categories that exist within the study area, and which were prepared (Figure 2.12), Land use categories have been mapped to existing land use categories that exist within the study area, and which were prepared (Figure 2.12). Land use categories have been mapped to which Cumberland County. The land use within the study area was verified in the field and a land use

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**F. Local Business and Environmental Characteristics**

Open Space/Recreation, Industrial, Public/semi-Public, Agricultural and Vacant land.

The existing land use information is based on the land use GIS mapping obtained from the Cumberland County. The land use categories that exist within the study area, and which were prepared (Figure 2.12). Land use categories.

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The existing land use information is based on the land use GIS mapping obtained from the Cumberland County. The land use categories that exist within the study area, and which were prepared (Figure 2.12). Land use categories.
Existing Conditions

Residential and industrial land uses comprise most of the study area. The residential land use is scattered throughout the area with many large neighborhoods. The industrial land use is centered around St. John's Church Road and Railroad Avenue. The industrial center generates a large amount of truck traffic which utilizes various routes within the study area to access major roadways such as US 15 and PA 581. The Naval Supply Depot occupies a large area in the western section of the study area and is a major employer. The overall environmental conditions of the study area are favorable for development, with a large area devoted to residential and industrial uses. However, the study area is bounded by the Conodoguinet Creek on the northern boundary and Cedar Run to the south. The existing environmental features were mapped in greater detail around the intersections studied, in order to estimate the impacts that proposed improvement concepts may have. The overall environmental conditions of the study area are shown in Figure 2.13.

Environmental Features

The existing environmental features within the study area include natural, cultural and socioeconomic resources. Natural resources consist of streams and wetlands. Cultural resources are comprised of National Register-listed historic structures and historic districts. Socioeconomic resources include potential hazardous waste sites. The existing environmental features within the study area were reviewed, using existing data.

Natural Resources

Two streams are located within the study area, the Conodoguinet Creek which encroaches on the northern boundary of the study and Cedar Run, which is located in the southeastern portion of the study area. The Conodoguinet Creek is listed as a Warm Water Fishery, and Cedar Run is listed as a Cold Water Fishery. The 100-year floodplains of the streams within the study area were reviewed, using existing data. No wetlands are located within the study area. The Conodoguinet Creek floodplain does not extend beyond the creek bank within the study area. However, the Cedar Run floodplain extends beyond the creek bank.

Cultural Resources

Within the study area, there are two National Register-listed historic structures and one National Register-eligible historic district. The National Register-listed structures include the Joannes Eastbounderly House, which is located adjacent to the Carlisle Pike/PA 581 intersection, and the Peace Church, which is located in the southwest corner of the study area. The Peace Church is listed as a National Register-eligible historic district.

Environmental Features

Overall, the study area is essentially built out within the study area, and any large scale change would be difficult. The service area is generally located above the major connections of the Carlisle Pike and Trindle Road. Several service areas are located along the major connections, including commercial and industrial sections. The industrial section is located in the western portion of the study area, and is a major employer. Commercial and industrial sections are located on the Carlisle Pike and Trindle Road. The study area is adjacent to major highways such as US 15 and PA 581. The Naval Supply Depot is located in the southeast corner of the study area, and is a major employer. The study area is located near several commercial and industrial areas, which may provide access to larger areas. The residential area is characterized by a large area of multi-family housing with many large, multi-family units. The industrial area is located to the north of the study area, and is characterized by a large area of commercial and industrial land uses.
extends in an east-west direction between Trindle Road and Simpson Ferry Road. The National Register listed and eligible resources have been identified on the Environmental Features mapping. Historic resources that are potentially eligible for the National Register (i.e. older than 50 years) have also been mapped for the study area. These resources will need to be evaluated further; this information was beneficial while developing the improvement concepts.

Socioeconomic resources within the study area consist of potential hazardous waste sites and community facilities and emergency services.

Due to the largely developed nature of the study area, several potential hazardous waste sites and community facilities and emergency services exist. This information was obtained through field investigations. Potential sites range from gas stations, car dealerships, dry cleaners, the Naval Supply Depot, and bulk storage facilities. The locations of these sites have been identified and located on the Environmental Features mapping.

Socioeconomic Resources
### Immediate Term Improvements

After analyzing the network under existing conditions, it was determined that changes could be made immediately to the corridor to improve existing conditions. In order to have minimal impact and cost, the improvements were limited to adjusting cycle lengths, signal splits and offsets, re-striping, and adding minimal turn-lanes only where absolutely necessary. These minimal impact and cost improvements were labeled "Immediate Term Improvements." Table 2.3 summarizes the immediate term improvements.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>John's Church &amp; SL</td>
<td>Restripe the northbound left turn lane to provide 230' of storage.</td>
</tr>
<tr>
<td>Trindle Road &amp; John's Church</td>
<td>Extend the northbound left turn lane to provide 230' of storage.</td>
</tr>
<tr>
<td>Carlisle Pike &amp; St. John's Church Road</td>
<td>Study of eliminating the split phasing of both intersections. Southbound left turns at Trindle Road. This would also include the cycle to restore southbound left turns at Carlisle Pike and includes a grade separation through lane and changes in signal phasing. The concept developed included 290' of storage.</td>
</tr>
<tr>
<td>Carlisle Pike &amp; Orr's Bridge Road/Central Boulevard</td>
<td>Extend the northbound left turn lane to provide 230' of storage.</td>
</tr>
<tr>
<td>Carlisle Pike &amp; 32nd Street (US15)</td>
<td>Extend the northbound left turn lane to provide 300' of storage.</td>
</tr>
<tr>
<td>Carlisle Pike &amp; 32nd Street (US15)</td>
<td>Advance to Preliminary Engineering, the concept developed included a grade separation through lane and changes in signal phasing.</td>
</tr>
<tr>
<td>Trindle Road &amp; St. John's Church Road</td>
<td>Restripe the northbound right turn lane to provide 230' of storage.</td>
</tr>
<tr>
<td>St. John's Church Road and Industrial Drive</td>
<td>Install traffic signal.</td>
</tr>
</tbody>
</table>

Table 2.3 – Summary of Immediate Term Improvements
The Harrisburg Area Travel Demand Model (HATDM) was developed by the Tri-County Regional Planning Commission (TCRPC) for use as a tool in transportation planning and air-quality evaluation. TCRPC serves as the metropolitan planning organization for the Harrisburg Metropolitan area, which includes Dauphin, Cumberland, and Perry Counties.

The HATDM is a regional, trip-based demand model that is implemented in the Citilabs CUBE TP Plus software platform. A four-step modeling process is used, including trip generation, trip distribution, mode choice, and trip assignment. The model forecasts passenger car and truck trips, as well as mode shares of travel (highway, transit, carpool, etc.).

The model region is divided into 489 traffic analysis zones (TAZs). Each TAZ contains current and projected data used to predict trip generation data. The model's roadway network represents all state roadways, major local road networks, and significant city and township roadways.

The most recent version of the HATDM had been calibrated and validated according to 2002 travel data, and 2002 was considered the model's "base year." The ultimate horizon year for the model was 2030. Interim year scenarios and alternatives can be created and tested to help determine a preferred transportation improvement plan.

The TCRPC agreed to provide runs of the HATDM for use in the CLASH Project. Model runs were requested on a scenario-by-scenario basis, and McCormick and the TCRPC collaborated to develop the input roadway networks and land use assumptions for each scenario. McCormick and the TCRPC collaborated to enhance the model's accuracy within the CLASH study area. In some cases, the demand modeling software could not accurately represent the CLASH study area. In these cases, the demand modeling software could not be coded to specifically reflect the operational conditions of the study area intersections. These locations were noted for "post-model" examination, when traffic volume adjustments would be coded to more accurately reflect the operational conditions of study area intersections.

B. CLASH Project Travel Demand Model

McCormick Taylor reviewed the HATDM Base Year (2002) roadway network and model inputs. Some revisions were made to improve the model's accuracy within the CLASH study area. In some cases, traffic volume adjustments would be applied to the model's output. McCormick Taylor worked with the TCRPC to develop the input roadway networks and land use assumptions for each scenario. McCormick Taylor provided TCRPC with the loaded network files, turning movement files, and trip matrices.

The TCRPC agreed to provide runs of the HATDM for use in the CLASH Project. Model runs were requested on a scenario-by-scenario basis, and McCormick and the TCRPC collaborated to develop the input roadway networks and land use assumptions for each scenario. McCormick and the TCRPC collaborated to enhance the model's accuracy within the CLASH study area. In some cases, the demand modeling software could not accurately represent the CLASH study area. In these cases, the demand modeling software could not be coded to specifically reflect the operational conditions of the study area intersections. These locations were noted for "post-model" examination, when traffic volume adjustments would be applied to the model's output.
apparent errors. Otherwise, no major revisions to the model's input files or coding scheme were implemented.

2. Model Calibration and Validation

Since the revisions to the roadway network and zonal data files were deemed to be minor and highly localized, it was assumed that the original calibration and validation of the HATDM remained valid. Therefore, a re-calibration and validation of the model was not completed as part of the CLASH Study.

3. Traffic Forecasting Methodology and Adjustments

The various, future conditions to be modeled were grouped into "scenarios", and each scenario consisted of a land use/growth component and a roadway network component. The land use/growth component, as prepared by TCRPC, is forecasted to a specific "horizon" year as an estimation of future population and employment within the TAZs and external growth outside of the HATDM Area. The roadway network component contained assumptions about the future condition of the roadway network. For all scenarios, even the "No-Build" scenarios, the roadway network included the transportation improvement program (TIP) projects and other transportation improvements.

The HATDM produces traffic forecasts for four distinct periods during a given week: AM Peak (6:00 AM to 9:00 AM), PM Peak (3:00 PM to 6:00 PM), Midday (9:00 AM to 3:00 PM), and Night (6:00 PM to 6:00 AM). The sum of the traffic volumes for all periods represents the daily/24-hour traffic volume. For the purposes of the CLASH Study, peak hour traffic volumes are required as input to the traffic analysis.

Initial Forecasts

Output from the HATDM provided period-specific turning movement volumes. The AM Peak period was 6:00 AM to 9:00 AM, and the PM Peak period was 3:00 PM to 6:00 PM. According to the model's documentation, 40 percent of the AM Peak period volume occurred in the AM Peak hour, and 35 percent of the PM Peak period volume occurred in the PM Peak hour. Therefore, 65 percent of the daily/24-hour traffic volume was accounted for in the peak periods. To account for limitations in traffic forecasting at the turning movement level of detail, NCHRP procedures were developed. These procedures are used to calculate the initial peak hour volumes.

Traffic forecasting methodologies and adjustments

The National Cooperative Highway Research Program (NCHRP) procedures use the relationships among base year traffic counts and the model volumes (base year and future years) to calculate volume forecasts based on the volume changes observed between the base year and the future year (as described in the model's documentation). The NCHRP procedures ensure that the relationships among base year traffic counts and the model volumes (base year and future years) are maintained.

Because the revisions to the roadway network were highly localized, it was assumed that the original calibration and validation of the HATDM remained valid. Therefore, a re-calibration and validation of the model was not completed as part of the CLASH Study.

Model Calibration and Validation

Since the revisions to the roadway network and zonal data files were deemed to be minor and highly localized, it was assumed that the original calibration and validation of the HATDM remained valid. Therefore, a re-calibration and validation of the model was not completed as part of the CLASH Study.
Missing Roadways & Intersections

The CLASH study area contains roadways and intersections that were not represented in the travel demand model. The initial peak hour volume forecasts at these locations were estimated by growing the traffic volume counts by a linear growth rate—1.20 percent per year on thoroughfares and 0.20 percent per year on driveways and neighborhood streets for established land uses.

Traffic Pattern Adjustments

The initial peak hour volume forecasts were evaluated for consistency on both a corridor and intersection basis. The following two types of traffic pattern adjustments were made:

1. **Intersection-to-Intersection Imbalances**
   - Volume imbalances between the study area intersections are expected, since traffic accesses the roadway network at many points along the network. However, the travel forecasting techniques and the location of traffic loading points in the model can exaggerate these imbalances, and it is necessary to reconcile the imbalances.
   - Two factors were considered in the process of reconciling the imbalances:
     - Location of Traffic Loading Points in the Model Network
       - The model loads traffic onto the roadway network at a limited number of points—typically one to four points per traffic analysis zone (TAZ). If the TAZs are larger than the grain of the roadway network, the volume forecasts at intersections near the model’s traffic loading points can be overly-influenced by the loaded volumes.
     - Differences observed in the 2007 traffic count volumes
       - These differences provide an estimate of the traffic entering/exiting the roadway network. The forecasted volumes were adjusted to replicate the differences observed in the traffic counts.

2. **Parallel Route Adjustments**
   - The travel demand model assigns traffic to parallel routes according to simplified comparisons of travel time and distance. Occasionally, these estimates are over-simplified, since they do not reflect subtle network details, driver perceptions, and other dynamic elements of the transportation system. In these cases, the following methodology was applied:
     - Location of Traffic Loading Points in the Model Network
       - The model loads traffic onto the roadway network at a limited number of points—typically one to four points per traffic analysis zone (TAZ).
     - Differences observed in the 2007 traffic count volumes
       - These differences provide an estimate of the traffic entering/exiting the roadway network. The forecasted volumes were adjusted to replicate the differences observed in the traffic counts.

Traffic Pattern Adjustments — The travel demand model assigns traffic to parallel routes
only one set of parallel routes—PA 581, Sporting Hill Road, and Orr's Bridge Road—was adjusted using this method.

Final Traffic Forecasts

The final AM and PM Peak hour forecast volumes represent the output from this Traffic Volume Forecasting Methodology. These volumes can be found in their corresponding specific 2020 and 2030 sections of the report.

C. Additional Analysis

1. Trindle Road Interchange Traffic Pattern Analysis

Currently, the interchange of PA 581 at Trindle Road is a partial interchange that only provides access to and from PA 581. Adding ramps to and from the west on PA 581—generally added to the roadway network at the point where PA 581 crosses St. John's Church Road—was suggested by the Study Team as a way to reduce unnecessary traffic circulation on the street network. To assess the traffic pattern and volume effects of such a project, TCRPC conducted a supplemental analysis of the completed interchange possibilities. Since the analysis was to evaluate only the generalized effects of the completed interchange, no specific design or ramp locations were considered. Instead, the model run used TCRPC land use/growth forecasts for 2030 and assumed the interchange was complete.

2. 15/581 Project Traffic Diversion Analysis

As previously identified, the US 15/PA 581 Improvement Project is a major improvement project that, when completed, will cause area-wide changes in traffic patterns and volumes on roadways in the CLASH Study Area. To estimate some of the anticipated traffic pattern changes, a rough assessment of the traffic pattern differences was conducted using this methodology, with the US 15/PA 581 Improvement Project in its current iteration. The land use/growth forecasts for 2030, as completed by TCRPC for their long-range planning efforts, were used in the model.

The land use/growth forecasts for 2030, as completed by TCRPC, were used to create a supplemental 2030 model run, which included the completed interchange. To assess the traffic pattern and volume effects of such a project, TCRPC conducted a supplemental model run for the future year, 2030, which included the completed interchange and followed the same methodology as the base year 2002 model. The 2002 Base Year model was used to identify the traffic volumes for the future year, 2030, with and without the completed interchange. The model run included the following interchanges, as identified previously:

- PA 581 at Trindle Road
- PA 381 at Sporting Hill Road
- PA 581 and PA 781 Interchange

These interchanges were considered in the supplemental model run.
Travel Demand Model

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PA 581 & Carlisle Pike (Gateway)

PA 581 & Trindle Road

US 15 & Simpson Ferry Road (2002)

US 15 & Zimmerman Drive (2020)

US 15 & Slate Hill Road

US 15 & Wesley Drive/Rossmoyne Road

A series of "select link" analyses were used to screen traffic accessing the study area at each interchange. The large increase in traffic on the surface streets in the area of the completed Trindle Road interchange would greatly increase the cost of the overall project. If was felt that the money required for construction of the Trindle Road interchange and improved access to the local network would not be in place prior to the completion of the interchange with PA 581. This would create additional problems for a system that is near capacity.

The large increase in traffic on the surface streets in the area of the completed Trindle Road interchange was compounded by the fact that PA 581 had the highest traffic volumes of the existing roadways within the study area. Improvements to the surface street network would be needed to improve the overall network. The results were summarized as percentages, according to the total study area TAZs traffic volumes that accessed the study area at each interchange.

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In analyzing the Trindle Road Interchange, the diversion of traffic from the existing roadway network to the proposed full interchange was evaluated. The following three graphics show the current and projected overall traffic traveling into the Trindle Road area, as well as the diversion of traffic to the existing roadways. The graphics show the impact of the proposed full interchange on the local network.

The large increase in traffic on the surface streets in the area of the completed Trindle Road interchange was compounded by the fact that PA 581 had the highest traffic volumes of the existing roadways within the study area. Improvements to the surface street network would be needed to improve the overall network. The results were summarized as percentages, according to the total study area TAZs traffic volumes that accessed the study area at each interchange.

3. Traffic Diversion – Proposed Trindle Road Interchange

Figure 3.1 is derived from the 2002 Base Year Traffic Volumes. The Traffic Diversion Pathway Diagrams show the traffic volumes, the volume of traffic from eastbound PA 581 that is using each local ramp volume. The traffic volumes on the right hand side of the figure represent the current and projected overall traffic volume on the Trindle Road area. The difference in the traffic volumes between 2002 and 2020 are due mainly to the changes in the access roadways.

The differences in the traffic volumes between 2002 and 2020 are due mainly to the changes in the access roadways. In 2002, a greater percentage of traffic is using PA 581 and PA 581 as compared to US 15. In 2020 after the completion of the 15-581 Interchange Project and without the completion of the Trindle Road Interchange, the traffic volumes increase by 15-381 Interchange Project and the completed full Trindle Road Interchange with PA 581. The increase in vehicle volumes per day averages a similar shift in traffic access patterns. Improved access from PA 581 to the area increases the likelihood for traffic to use the local surface streets system, reducing the use of I-81/US 15.

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Interchange could be more effectively utilized in the various intersection and corridor improvements that were the result of the CLASH study. This concept may warrant future consideration to address system continuity concerns but the benefit cost ratio does not warrant its completion at this time.
BEFORE 15-581 Interchange Project
2002 Base Year Model

Eastbound PA-581 Traffic entering the CLASH Traffic Study Area

Percentage of volume by interchange
Blue = Gateway
Red = Simpson Ferry/Slate Hill

2002 Traffic Model

65%

35%
AFTER 15-581 Interchange Project
2020 Future Year Model

Eastbound PA-581 Traffic entering the CLASH Traffic Study Area

Percentage of volume by interchange
Blue = Gateway
Red = Zimmerman/Slate Hill

CLASH Circulation Study

Legend
Intersection Under Study
Municipal Boundary

1 inch equals 800 feet
After 15-581 Interchange Project with St. John's Church Interchange
2020 Future Year Model with Interchange

Eastbound PA-581 Traffic entering the CLASH Traffic Study Area

Percentage of volume by interchange
Blue = Gateway
Green = St. John's Church
Red = Zimmerman/Slate Hill

Legend
- Intersection Under Study
- Municipal Boundary

1 inch equals 800 feet
IV.  2020 PROJECTIONS AND IMPROVEMENTS

A. Network Modifications, Assumptions, and Traffic Projections

TCRPC conducted a travel model run for the future year, 2020, and provided McCormick Taylor with the associated loaded roadway networks and intersection turning movement files. Based on the methodology described previously, McCormick Taylor prepared the future year 2020 "No-Build" turning movement volume forecasts.

The land use/growth forecasts for 2020, as completed by TCRPC for their long-range planning efforts, were used in the model.

The roadway network for 2020 assumed that the following roadway improvement projects were completed:

- Widening for new auxiliary lanes on PA 581 eastbound between US 15 and PA 174
- Widening for new auxiliary lanes on PA 581 westbound between US 15 and PA 174
- Widening for new auxiliary lanes on US 15 between the Shartlesville Road and Steel Hill Road
- Widening for new auxiliary lanes on US 15 between the Calvary Church Road and Steel Hill Road
- Widening for new auxiliary lanes on US 15 between the Lower Allen Drive (former Allen Drive) and PA 581

"Off-Site" Improvement Projects associated with the 15/581 Interchange Project

- Addition of a westbound lane on Simpson Ferry Road between Zimmerman Drive and AE Drive
- Updating the cross-section of Zimmerman Drive (former Allen Drive)
- Relocation of the existing US 15 interchange at Gettysburg Road to a new urban diamond interchange at Zimmerman Drive
- Widening for new auxiliary lanes on PA 581 westbound between PA 581 and the I-83 interchange
- Widening for new auxiliary lanes on PA 581 eastbound between US 15 and PA 174

The Traffic Volume Forecasting Methodology for 2020 resulted in the 2020 No Build Volumes that are shown in Figures 4.1 and 4.2.
FIGURE # 4.2 Turning Movements

2020 No-Build Conditions

Location: Cumberland County, PA
<table>
<thead>
<tr>
<th>Node Name</th>
<th>Delay</th>
<th>LOS</th>
<th>Delay</th>
<th>LOS</th>
<th>Delay</th>
<th>LOS</th>
</tr>
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<tbody>
<tr>
<td>1. Carlisle Pike &amp; Van Patton Rd.</td>
<td>17.7</td>
<td>B</td>
<td>23.0</td>
<td>C</td>
<td>32.6</td>
<td>D</td>
</tr>
<tr>
<td>2. Carlisle Pike &amp; PA 581 off-ramp</td>
<td>47.0</td>
<td>D</td>
<td>140.3</td>
<td>F</td>
<td>66.1</td>
<td>E</td>
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<td>3. Carlisle Pike &amp; Sporting Hill Rd.</td>
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<td>D</td>
<td>41.5</td>
<td>D</td>
</tr>
<tr>
<td>4. Carlisle Pike &amp; St. John's Church Rd.</td>
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<td>C</td>
<td>28.8</td>
<td>C</td>
<td>14.0</td>
<td>D</td>
</tr>
<tr>
<td>5. Carlisle Pike &amp; Orr's Bridge Rd.</td>
<td>28.3</td>
<td>E</td>
<td>24.0</td>
<td>C</td>
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<td>B</td>
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<tr>
<td>51. Carlisle Pike &amp; Central Blvd.</td>
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<td>120.9</td>
<td>F</td>
<td>120.5</td>
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<td>F</td>
<td>75.2</td>
<td>E</td>
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<td>55.7</td>
<td>E</td>
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<td>9. Trindle Rd. &amp; Railroad Ave.</td>
<td>25.1</td>
<td>C</td>
<td>25.6</td>
<td>C</td>
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<td>B</td>
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<tr>
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<td>F</td>
<td>12.6</td>
<td>B</td>
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<td>F</td>
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<td>C</td>
<td>9.1</td>
<td>A</td>
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<tr>
<td>18. Simpson Ferry Rd. &amp; Railroad Ave.</td>
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<td>F</td>
<td>28.8</td>
<td>C</td>
<td>9.1</td>
<td>A</td>
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<tr>
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<td>F</td>
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<td>B</td>
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<td>B</td>
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<tr>
<td>20. Gettysburg Rd. &amp; Locust St.</td>
<td>66.1</td>
<td>E</td>
<td>46.9</td>
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<td>B</td>
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<td>15.4</td>
<td>B</td>
<td>14.9</td>
<td>B</td>
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</tbody>
</table>

1. HCM Delay and Level-of-Service values are for the overall intersection as generated by Synchro v.6, Build 614.
2. Delay is expressed in terms of “seconds per vehicle”.
3. UPPERCASE levels of service for signalized intersections; lowercase levels of service for unsignalized intersections.
C. Roadway Improvements

The roadway improvements which correspond to the build conditions and the corresponding delay and LOS outlined in the table above can be found on the Roadway Improvement Graphics which are located in Appendix F. The major improvements have been summarized in Figure 4.3. Environmental impacts, costs, and right-of-way impacts are summarized on the figures in Appendix F and a cost estimate tool has been included on the CD with this report. It should be noted that the figures in Appendix F include pedestrian and bicycle recommendations as well as pedestrian and bicycle recommendations. The roadway improvements which correspond to the build conditions and the corresponding delay and LOS outlined in the table above can be found on the Roadway Improvement Graphics which are located in Appendix F. The major improvements have been summarized in Figure 4.3. Environmental impacts, costs, and right-of-way impacts are summarized on the figures in Appendix F and a cost estimate tool has been included on the CD with this report. It should be noted that the figures in Appendix F include pedestrian and bicycle recommendations as well as pedestrian and bicycle recommendations.
Construct new westbound lane on Carlisle Pike. Intersection Modifications at Intersection #1 and #2.

Construct new westbound right turn lane at Intersection #3.

At Intersection #5, lengthen eastbound, westbound, and southbound right turn lanes.

At Intersection #6, add through and exclusive turn lanes at various locations. At Intersection #13, add through and exclusive turn lanes at various locations.

Construct intersection widening and improvement project requiring ROW acquisition.

At Intersection #10, install signals at Intersections #11 and #12.

Improve eastbound approach at Intersection #9.

Install a two-phase signal at Intersections #15 and #16.

Intersection Modifications including the addition of a 150' eastbound right turn lane at Intersection #14.

Intersection Modifications at Intersection #17.

Intersection Modifications including the creation of two northbound through lanes in conjunction with the developer project at Intersection #18.

At Intersection #19, lengthen the westbound and northbound turn lanes.

Install a two-phase signal at Intersections #20.

Consider installing a signal.

Intersection Modifications at Intersection #9.

Intersection Modifications at Intersection #17.

Intersection Modifications at Intersection #14.

Intersection Modifications at Intersection #18.
V. 2030 PROJECTIONS AND IMPROVEMENTS

A. Network Modifications, Assumptions, and Traffic Projections

TCRPC conducted a travel model run for the future year, 2030, and provided McCormick Taylor with the associated loaded roadway networks and intersection turning movement files. Based on the methodology described previously, McCormick Taylor prepared the future year, 2030, network turning movement volume forecasts.

The roadway network for 2030 assumed that the following roadway improvement projects were completed in addition to the improvement assumed for the 2020 network:

- Widening of Sporting Hill Road to a 5-lane cross-section between Carlisle Pike and St. John’s Church Road.
- Widening of Trindle Road to a 5-lane cross-section between Sporting Hill Road and St. John’s Church Road.
- Trindle Road
- Widening of Sporting Hill Road to a 5-lane cross-section between Carlisle Pike and

The Traffic Volume Forecasting Methodology for 2030 resulted in the 2030 No Build Volumes that are shown in Figures 5.1 and 5.2.
FIGURE # 5.1 Turning Movements
2030 No-Build Conditions
Location: Cumberland County, PA

LEGEND
- Study Intersection Signalized
- Study Intersection Unsignalized

AM (PM) Turning Movement Traffic Volume

MATCH TO NEXT SHEET

MATCH TO ABOVE

MATCH TO INSET
FIGURE # 5.2 Turning Movements

2030 No-Build Conditions
Location: Cumberland County, PA
<table>
<thead>
<tr>
<th>Node Name</th>
<th>Delay No-Build</th>
<th>Delay Build</th>
<th>LOS No-Build</th>
<th>LOS Build</th>
<th>2030 AM</th>
<th>2030 PM</th>
</tr>
</thead>
<tbody>
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<td>1 Carlisle Pike &amp; Van Patton Rd.</td>
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<td>15.1 B</td>
<td>29.6 C</td>
<td>16.8 B</td>
<td>22.1</td>
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<td>98.9 F</td>
<td>22.4 C</td>
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<td>46.4 D</td>
<td>32.8 C</td>
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</tbody>
</table>

1. HCM Delay and Level-of-Service values are for the overall intersection as generated by Synchro v.6, Build 614.
2. Delay is expressed in terms of "seconds per vehicle".
3. UPPERCASE levels of service for signalized intersections; lowercase levels of service for unsignalized intersections.
Roadway Improvements

C. Roadway Improvements

The roadway improvements which correspond to the build conditions and the corresponding delay and LOS outlined in the table above can be found on the Roadway Improvement Graphics which are located in Appendix F. The major improvements have been summarized on Figure 5.3. Environmental impacts, costs, and right-of-way impacts are summarized on the figures in Appendix F and a cost estimate tool has been included on the CD with this report. It should be noted that the figures in Appendix F include pedesrian and bicycle recommendations as well as changes to the figures in Appendix F. The Roadway Improvements which correspond to the build conditions and the corresponding delay and LOS outlined in the table above can be found on the Roadway Improvement Graphics which are located in Appendix F.
At Intersection #2, construct 2 southbound right turn lanes and widen westbound Carlisle Pike.

Sporting Hill Road and Trindle Road widening projects are currently on the Long Range Transportation Plan.

Developer improvements at Intersection #8 are assumed sometime between 2020 and 2030.

At Intersection #15, add an eastbound left turn lane.

Install a three-phase signal and an eastbound left turn lane.

Major realignment of Orr’s Bridge Road to intersect Carlisle Pike at 38th Street.

Location: Cumberland County, PA
VI. PUBLIC AWARENESS

On January 23, 2008, approximately forty-six members of the public attended the public meeting for the CLASH Circulation Study held at the Hampden Township Emergency Service Building, 295 S. Sporting Hill Road. Prior to the public meeting, ten public officials participated in a public officials briefing.

The meeting was held to introduce the project to the public, display traffic and environmental information gathered in reference to the study area and present the various concepts developed for twenty-two (22) intersections and the potential completion of the PA 581/St. John's Church Road Interchange.

Study area maps and surveys were distributed to the meeting attendees. Twenty-seven of the forty-six attendees completed the survey. The survey results are below. In addition to the survey responses, several roadway and intersection configurations were brought up at the public meeting. These are included in the Technical Files, Section 3.

### Survey Responses

#### 1. Where do you live? (Please check)

<table>
<thead>
<tr>
<th>Municipality</th>
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<tr>
<td>Borough of Camp Hill</td>
<td>1</td>
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<td>Lower Allen Township</td>
<td>2</td>
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<td>Mechanicsburg Borough</td>
<td>1</td>
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<td>Hampden Township</td>
<td>19</td>
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<td>Shiremanstown Borough</td>
<td>0</td>
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<tr>
<td>East Pennbrook Township</td>
<td>1</td>
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<tr>
<td>Other municipality (Fairview, Silver Spring, Carroll Township)</td>
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#### 2. How often do you drive through the CLASH study area?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
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<tr>
<td>Each day</td>
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<tr>
<td>Once/week</td>
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<td>Rarely (less than once per week)</td>
<td>1</td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
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#### 3. Please indicate routine problems you encounter in the study area (check all that apply)

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<th>Problem</th>
<th>Count</th>
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<tr>
<td>Traffic congestion (back-ups)</td>
<td>13</td>
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<tr>
<td>Trouble pulling out onto roadway (from stop sign)</td>
<td>8</td>
</tr>
<tr>
<td>Delay at traffic signals</td>
<td>19</td>
</tr>
<tr>
<td>Traffic congestion (back-ups)</td>
<td>26</td>
</tr>
</tbody>
</table>

The meeting was held to introduce the project to the public, display traffic and environmental information gathered in reference to the study area and present the various concepts developed for twenty-two (22) intersections and the potential completion of the PA 581/St. John's Church Road Interchange.

On January 23, 2008, approximately forty-six members of the public attended the public meeting.
4. Please circle the top 5 intersections/interchanges you feel should receive priority attention for improvements. (see attached map for numbered intersection locations)

The highest priority intersection was noted as Carlisle Pike, Orr’s Bridge Road and Central Boulevard with 12 indications on the survey. Carlisle Pike and St. John’s Street and 32nd Street received 9 indications as did the intersection of Carlisle Pike and St. John’s Street. The intersection of Carlisle Pike, Market Street and Central Boulevard received 10 indications. The intersection of Carlisle Pike, Orr’s Bridge Road and Central Boulevard received 11 indications on the survey. Several specific comments and some suggestions were also included on the survey responses. Several specific comments and some suggestions were also included on the survey responses.
The following four improvement packages are recommended for advancement to the TIP for the network.

The following four improvement packages are recommended for advancement to the TIP for the network.

For inclusion on the TIP, several packages and groups of packages were developed, as discussed below.

Two comparison tables were also developed in order to assist in the determination of the specific improvements as well as the order in which these improvements should be implemented. These tables are in assistance of the specific improvements as well as the order in which these improvements should be implemented. These tables are in assistance of the specific improvements as well as the order in which these improvements should be implemented.

In addition to the improvement graphics, cost estimates were developed for both the 2020 and 2030 improvements. The cost estimates include the required pavement, guiderail, drainage, E&S, signage, pavement markings, signals, and MPT. A typical cost estimate for 2020 and 2030 can be found in Figure 7.2.

The following four improvement packages are recommended for advancement to the TIP for immediate implementation and further study.
1. Implement the immediate recommendations for Intersections 3, 4, and 5. These are the intersections of Sporting Hill Road, St. John’s Church Road, and Orr’s Bridge Road/Central Boulevard with the Carlisle Pike. The specific improvements to each intersection can be found in Appendix F. Since these improvements are adding additional travel lanes and turning lanes without constructing a new pavement cross-section, the cost is minimal in comparison to a full intersection re-construction.

2. Install a three-phase signal at Intersection 21, St. John’s Church Road and Industrial Drive. The cost is minimal, and the existing cross-section will support the additional left turn lane. The cost is minimal, and the existing cross-section will support the additional left turn lane.

3. Rescape the northbound right turn lane to provide 300’ of storage at Intersection 10, Trindle Road and St. John’s Church Road. The cost is minimal, and the existing cross-section will support the additional right turn lane.

4. Advance a detailed study of Intersections 6 and 13. These intersections are Carlisle Pike, Market Street and 32nd Street, and Trindle Road, Chestnut Street and 32nd Street. Some items to consider in this study would be signal phasing, pedestrian accommodations, and their influence on the signal operations and the possibility of adding an additional north/south through lane. In addition, the concepts from the Public Meeting should be considered. These can be found in Appendix F. These improvements are recommended for inclusion in the next Long Range Transportation Plan update. All of these improvement graphics can be found in Appendix F. They have also been summarized on Figure 4.3 (2020 improvements) and Figure 5.3 (2030 improvements). They have also been summarized on Figure 7.3 (immediate) as well as Figure 6.3 (immediate). In addition, the concepts from the Public Meeting should be considered. These can be found in addition to the TIP Packages suggested above. The 2020 and 2030 recommendations from the TIP Packages are as follows:
#3. Improve striping for southbound left turn lane on Sporting Hill at intersection with Carlisle Pike. Extend eastbound right turn lane from Sporting Hill to 581 bridge.

#4. At Carlisle Pike and St. John’s Church Road, re-delineate the center TWLTL on the westbound approach to extend the left turn lane to provide 290’ of storage. 
- Investigate extending the eastbound right turn lane to provide 295’ of storage.

#5. At Carlisle Pike and Orr’s Bridge Road, re-delineate the center TWLTL on the eastbound approach to extend the left turn lane to provide 360’ of storage. Improve delineation of westbound right turn lanes. Extend the northbound left turn lane to provide 300’ of storage and install overhead lane control signage.

Total Project Cost = $550,000

- Consider re-striping Carlisle Pike from Central Boulevard to 581 bridge to accommodate dual left turns from Central Boulevard onto Carlisle Pike.

#6 & #13. Advance to Preliminary Engineering, the concept developed including a third southbound through lane and changes in signal cycles to restrict northbound left turns at Carlisle Pike and southbound left turns at Trindle Road. This would also include the study of eliminating the split phasing of both intersections.

Include two additional concepts from the public in the Preliminary Engineering phase of study.

Total Project Cost = $2,000,000

#10. At Trindle and St. John’s Church Road, restripe the northbound right turn lane to provide 230’ of storage.

Total Project Cost = $20,000

#12. Install traffic signal Industrial Drive and St. John’s Church Road.

Total Project Cost = $300,000

FIGURE 7.3 - Immediate TIP Projects

CLASH - Immediate TIP Projects
Location: Cumberland County, PA
The meeting was held as a kick-off meeting to the CLASH Circulation Study.

### MEETING DISCUSSION

**ATTACHMENTS**

<table>
<thead>
<tr>
<th>Attachment</th>
<th>Description</th>
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<tbody>
<tr>
<td>Attachment A</td>
<td>Revised Schedule</td>
</tr>
<tr>
<td>Attachment B</td>
<td>OD Survey</td>
</tr>
<tr>
<td>Attachment C</td>
<td>Agenda</td>
</tr>
</tbody>
</table>

### ATTENDEES

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terry Adams</td>
<td>PennDOT District 8-0</td>
<td>717-787-7144</td>
<td><a href="mailto:teadams@state.pa.us">teadams@state.pa.us</a></td>
</tr>
<tr>
<td>Kirk Stoner</td>
<td>Cumberland County</td>
<td>717-240-5381</td>
<td><a href="mailto:kstoner@ccpa.net">kstoner@ccpa.net</a></td>
</tr>
<tr>
<td>John Eby</td>
<td>Lower Allen Township</td>
<td>717-975-7575</td>
<td><a href="mailto:john_eby@lower-allenpa.us">john_eby@lower-allenpa.us</a></td>
</tr>
<tr>
<td>Chip Millard</td>
<td>TCRPC/HATS</td>
<td>717-234-2638</td>
<td><a href="mailto:cmillard@tcrpc-pa.org">cmillard@tcrpc-pa.org</a></td>
</tr>
<tr>
<td>Michael Gossert</td>
<td>Hampden Township</td>
<td>717-761-0119</td>
<td><a href="mailto:mgossert@hampdentownship.us">mgossert@hampdentownship.us</a></td>
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<tr>
<td>Jerry Spease</td>
<td>Hampden Township</td>
<td>717-761-0119</td>
<td><a href="mailto:jspease@hampdentownship.us">jspease@hampdentownship.us</a></td>
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<tr>
<td>John Bradley</td>
<td>Hampden Township</td>
<td>717-761-0119</td>
<td><a href="mailto:jebradjr@comcast.net">jebradjr@comcast.net</a></td>
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<tr>
<td>Robert Gill</td>
<td>East Pennsboro Township</td>
<td>717-732-0711</td>
<td><a href="mailto:admin@eastpennsboro.net">admin@eastpennsboro.net</a></td>
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<tr>
<td>Jim Willshier</td>
<td>HRC/CREDC</td>
<td>717-213-5081</td>
<td><a href="mailto:jwillshier@hbgrc.org">jwillshier@hbgrc.org</a></td>
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<tr>
<td>Brian St. John</td>
<td>McCormick Taylor</td>
<td>717-540-6040</td>
<td><a href="mailto:bstjohn@mtmail.biz">bstjohn@mtmail.biz</a></td>
</tr>
<tr>
<td>Melody Caron</td>
<td>McCormick Taylor</td>
<td>717-540-6040</td>
<td><a href="mailto:macaron@mtmail.biz">macaron@mtmail.biz</a></td>
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<tr>
<td>Laura Montgomery</td>
<td>McCormick Taylor</td>
<td>717-540-6040</td>
<td><a href="mailto:lamontgomery@mtmail.biz">lamontgomery@mtmail.biz</a></td>
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The meeting began with brief introductions.

1. The meeting was held as a kick-off meeting to the CLASH Circulation Study.
2. The meeting attendees were considered project stakeholders. Several potential stakeholders were identified that did not attend the meeting. The general consensus was to include all original stakeholders on project correspondence and meeting minutes whether or not they attended the meeting. The only other group identified as a potential stakeholder was the Pennsylvania Motor Trucking Association (PMTA). It was decided that special meetings would occur with PMTA but they did not need to be considered a project stakeholder and attend status meetings.
3. Brian St. John requested the attendees to share their concerns with transportation issues within the study area and what they hoped to see as an outcome of the CLASH Study.

Terry Adams was concerned that stakeholders felt that a complete interchange at PA 581/Trindle Road would reduce traffic on the Carlisle Pike, which he did not believe would be the case. He also noted funding will be an issue for any potential project or package of projects.
Kirk Stoner would like to see the problems quantified and solutions offered. John Eby indicated he was a proponent of the full interchange at PA 581/Trindle Road but was also concerned with the Wesley Drive/Lisburn Road area and the development that is occurring and projected to occur. He was concerned with "dump off" traffic cutting through the township to avoid PA 581.

Chip Millard was concerned about the lack of a good north/south corridor and suburban traffic moving to other suburban areas. He also noted concerns with the amount of truck traffic Shiremanstown is experiencing. Pedestrian and bicycle facilities are also a concern within the study area, especially around Sporting Hill Road and St. John's Church Road.

Mike Gossert wanted the study to determine if the PA 581/Trindle Road interchange should stay on the TIP, as well as, to address truck traffic traveling to and from the industrial parks along St. John's Church Road. Rob Gill indicated that the project team will also be studying each corridor to develop corridor specific recommendations and packages of solutions.

John Bradley noted his concern with truck traffic traveling from Carlisle to the industrial parks along St. John's Church Road. He would also like the project team to study whether the signal timing could be optimized on the Carlisle Pike, if a Sporting Hill Road connection to Simpson Ferry Road would be helpful, a potential bike path along PA 581, and a possible extension of the service road behind the Carlisle Pike to St. John's Church Road.

The service road behind the Carlisle Pike is John's Church Road. This will be evaluated as a short-term improvement scenario as part of the project.

Project is complete.

Terry Adams noted there will likely be benefits experienced once the PA 15/PA 581 Interchange Project is complete.

Brian St. John indicated that in addition to the interchange at PA 581/Trindle Road the study team will also be studying each corridor to develop corridor specific recommendations and packages of solutions.

The team will also be studying each corridor to develop corridor specific recommendations and packages of solutions. The team will complete the study of each corridor to develop corridor specific recommendations and packages of solutions.
11. The origin and destination study will be conducted after the traffic counts are complete at the intersections of St. John's Church Road with Trindle Road and Simpson Ferry Road. A draft survey was distributed to the stakeholders for comment. (Attachment B)

12. Brian anticipated status meetings to be held in June, August, October and January with a public meeting in November. It was determined afternoon meetings would work best for the stakeholders. The status meeting dates decided on were June 18th, August 20th and October 15th at 1:00pm at the Hampden Township Building.

13. The proposed project schedule was presented and agreed upon. It is anticipated the study will be complete in March 2008. (Attachment C)

Follow up Items

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<td>1. Contact Jim Runk of PMTA McCormick Taylor</td>
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<tr>
<td>2. Coordinate with TCRPC on pertinent results of Goods Movement Study</td>
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<tr>
<td>3. Draft letter and coordinate with TCRPC to send to major area trucking companies</td>
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<tr>
<td>4. Contact the West Shore Tax Bureau for employee zip code information</td>
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<tr>
<td>5. Contact Navy Depot to determine when the South Gate is open</td>
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<tr>
<td>6. Contact the West Shore Tax Bureau for employee zip code information</td>
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<tr>
<td>7. Contact the West Shore Tax Bureau for employee zip code information</td>
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<tr>
<td>8. Contact the West Shore Tax Bureau for employee zip code information</td>
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</tbody>
</table>

Prepared by:

McCORMICK TAYLOR, INC.

Laura Montgomery
Every other month

11.

Status Meetings

10.

Public Meeting

9.

Public Involvement Plan

8.

Traffic Model

7.

Traffic Analysis Tools

6.

Survey Locations

5.

Origin and Destination Study

4.

Traffic Counts

3.

Project Study Area

2.

Project Stakeholders

1.

Introductions

Hampden Township Building
1:00 p.m.
April 16, 2007

KICK-OFF MEETING AGENDA

CLASH CIRCULATION STUDY
CLASH - ORIGIN/DESTINATION SURVEY
### Anticipated Schedule

**Clash Circulation Study**

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**Legend:**
- Task Duration
- Status Meeting
- Public Meetings

*Attachment C*
Traffic

1. Traffic surveys and motions, minimum survey capture rate, and minimum survey capture rate for each
corner observed including the quality of data obtained. Minimum area to stop vehicles, safety of
intersection survey conducted at 4 to 5 signalized intersections. In preparing the O-D study, several
intersection surveys conducted at Crandall Road and PA 381. Originally, the O-D study was to be an
complete interchange at Crandall Road and PA 381. Originally, the O-D study was to be an
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complete interchange at Crandall Road and PA 381. Originally, the O-D study was to be an

2. Brian explained that an Origin–Destination (O-D) study was proposed to be conducted within the
3. Brian explained that an Origin–Destination (O-D) study was proposed to be conducted within the
4. Brian explained that an Origin–Destination (O-D) study was proposed to be conducted within the

Meeting Discussion

The meeting was held as a status meeting on the progress of work for the CLASH Circulation Study.

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<th>PHONE</th>
<th>LOCATION</th>
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<tbody>
<tr>
<td><a href="mailto:teadams@state.pa.us">teadams@state.pa.us</a></td>
<td>717-787-7144</td>
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<td>717-540-6040</td>
<td>Hampden Township Building</td>
</tr>
</tbody>
</table>

Kick-Off Meeting

CLASH Circulation Study

Engineer & Planners Taylor

Since 1946

McComick

McComick Taylor
Brian explained that in working with the West Shore Tax Bureau, zip code information was obtained that linked local residents to their employers and local employees to their place of residence. This data was imported into GIS to determine how commuters, namely automobile traffic, accessed the study area. With this additional information now made readily available, McCormick Taylor proposed a new approach to completing the O-D study. The approach was outlined in a memo dated May 18, 2007 and was distributed to the project stakeholders via email on May 23, 2007.

As sufficient information was now known for the automobile travel patterns (significantly more information than could have been obtained in the original interview O-D study proposed) the revised approach for the O-D focused on truck travel patterns. In order to collect this data, a vehicle following method was proposed where data collectors followed trucks entering and exiting the study area. Brandon Stodart discussed the results from the O-D study. During the 10 hour study period, over 300 trucks were followed and their travel paths were noted; of those trucks, over 250 surveys were deemed usable. Brandon noted that based on field observations, trucks were most prevalent in the northern section of the project (i.e., north of Simpson Ferry Road). Brandon explained that the next step would be to further refine the study data to determine the type and frequency of use of truck paths. Brian noted that the truck O-D data will be utilized to further refine the regional traffic demand model.

As discussed in relation to the O-D study, the West Shore Tax Bureau provided zip code information that linked local residents to their employers and local employees to their place of residence. Brian explained that the local employees to their place of residence data was used to determine where people were traveling from to enter the study area. Once the location of where local employees lived was plotted, general travel paths along major arterials were established. Brian noted that approximately 60% of the trips traveling to employers within the study area could be considered a trip from the local area; 42.4% west shore areas and 18.3% east shore areas. Mike Gossert requested that the zip codes for the areas that were considered the local area be provided; Action Item. The study team discussed the need to show the reverse travel pattern data (i.e., local residents traveling to their employers). The general consensus of the group was that the public may request this information, therefore these travel patterns will also be summarized; Action Item. Chip Millard noted the map legend on the map should be modified to describe the grey shading; Action Item. The study team requested the zip code maps to be attached to the meeting minute distribution email; Action Item. Brian concluded the travel pattern discussion by adding that this data will be coupled with the regional traffic demand model to evaluate O-D patterns and to further refine the regional traffic demand model.
The next steps of the project include developing future traffic volumes for the future conditions. Terry Adams questioned the basis of growth for the external stations. Brian explained that the growth would be based on TCRPC demand model, which in turn is based on historic data collected. Brian stated that he would verify this for accuracy. Action Item.

Brian noted that the study years for the project would include a base year, short-term year, mid-term year, and long-term year. The exact years for these scenarios are being coordinated with TCRPC and will be verified with the project stakeholders.

Once future traffic volumes are established, preliminary concepts will be developed for both short-term and long-term improvements. The last figure in the handouts provided an example of how the intersection improvements would be summarized. Brian noted that the preliminary concepts developed would provide all of the information that would be needed for the forms to include the projects on the TIP.

Dan Flint questioned if it would be beneficial to note the original deficiency and the benefit that the improvements are providing on the figure. The study team discussed and agreed if there was enough room to include the information on the figure otherwise a separate summary would suffice.

Follow up Items

Prepared by:

Melody Caron  
McCORMICK TAYLOR, INC.
The meeting was held as a status meeting on the progress of work for the CLASH Circulation Study.

MEETING DISCUSSION

Password: crisp
Username: champ

The site can be copied/downloaded from the site. To access the site, please use the following link and input the supplied username and password when prompted. The site can then be copied/downloaded from the site.

1. 2020 No-Build Intersection Conditions
2. 2020 No-Build Improvements
3. Track O-D Results
4. Track O-D Results
5. 2007 Existing Intersection Conditions
6. 2007 No-Build Intersection Conditions
7. 2030 No-Build Intersection Conditions
8. Improvements Grading

The following items were presented/distributed at the meeting and are included in the attachment.

ATTACHMENTS

<table>
<thead>
<tr>
<th>File Name</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMPs</td>
<td>Graphic</td>
</tr>
<tr>
<td>Toolkit</td>
<td>Graphic</td>
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<tr>
<td>I-83</td>
<td>Graphic</td>
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<td>VTR</td>
<td>Graphic</td>
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<tr>
<td>Project</td>
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</tr>
<tr>
<td>Example</td>
<td>Graphic</td>
</tr>
</tbody>
</table>

The following items were presented/distributed at the meeting and are included in the attachment.

ATTENDERS

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandon S.</td>
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<td>717-540-6040</td>
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<td>717-540-6040</td>
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<td>717-540-6040</td>
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<tr>
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<tr>
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<td><a href="mailto:tadams@hampd.com">tadams@hampd.com</a></td>
<td>717-240-5381</td>
</tr>
</tbody>
</table>

Location: Hampden Township Building
Time: 2:00 PM
Date: October 24, 2007

Status Meeting
CLASH Circulation Study
6. Figures illustrating the 2030 No-Build Traffic Volumes for the morning and afternoon peak hours.

2030 No-Build Volumes

John's Church Road)

The group also discussed the influence of the existing rail crossings and possible remedies to the congestion created when trains completely block some of the major roadways in the area. It was significant discussion on the causes of the volume increases throughout the study area.

3. The group discussed the feasibility of building and obtaining trucks as well as the feasibility of the O-D

2. The group discussed the equalities of inbound and outbound trucks as well as the volume increases throughout the study area.

Item 1.

Item 2.

Item 3.

Item 4.

Item 5.

Item 6.

Item 7.

Item 8.

Item 9.

Item 10.

Item 11.

Item 12.

Item 13.

Item 14.

Item 15.

Item 16.

Item 17.

Item 18.

Item 19.

Item 20.

Item 21.

Item 22.

Item 23.

Item 24.

Item 25.

Item 26.

Item 27.

Item 28.

Item 29.

Item 30.

Item 31.

Item 32.

Item 33.

Item 34.

Item 35.

Item 36.

Item 37.

Item 38.

Item 39.

Item 40.
The question of ROW acquisition involved with the addition of additional lanes was raised, but the main thrust of the group was to improve the arterial timing, further investigate the improvement of ROW acquisition involved with the addition of additional lanes was raised, but the

improvement of ROW acquisition involved with the addition of additional lanes was raised, but the

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improvement of ROW acquisition involved with the addition of additional lanes was raised, but the
Church Road and Tindle Road has a limited amount of improvement changes based on the current order to the necessary improvements and unacceptable condition. The intersection of SL John's Tindle Road will remain a property discrepancy on the southerly corner of the intersection in Tindle Road will remain a property discrepancy on the southerly corner of the intersection in the intersection will be updated as part of the 15-581 Project. The intersection of Sharp's Lane and

S. Drive and 2030 improvements. This is part of a development that is occurring on the west side of Wesley

Drive. This idea was put aside until further information can be

gathered on the long term plan for Wesley Drive. This idea was put aside until further information can be

improving operations of the entire stretch, improve safety, and improve the current lane

and new signal timings. The southernmost movement along the PA 281 Off-Ramp was suggested to

carry under the PA 281 Bridge. The new additional thought is the addition/alteration of the EB signal input lane should be

addition 1 is the general thought that the addition/alteration of the EB signal input lane should be carried out. In

Sierra Drive, the new input lane should be

12. For the intersection of Sport Hill Road and Carlsisle Pike, enhancing the NB double left at Sport Hill

intersection configuration of PA 281 Bridge/Central Boulevard should be studied to determine the most appropriate

ramps at PA 281 and Central Boulevard and the possible future

number analysis and investigation of the effects on Central Boulevard and the possible future

hubber analysis and investigation of the effects on Central Boulevard and the possible future

Central Boulevard and the possible future

13. The alternative for the Carlisle Pike PA 281 Off-Ramp/Gateway included a short reconfiguration

14. An alternative for Sport Hill Road was also discussed involving the realignment of Sport Hill

would improve operations of the entire stretch, improve safety, and improve the current lane

be carried out. In the case of the Apex Bridge, the Apex Bridge is the case were also discussed, the general consensus of the Apex was that

During the discussion, other alternatives such as narrowing under Carlsisle Pike or re-routing

the neighborhood north of Carlsisle Pike

the neighborhood north of Carlsisle Pike

The first alternative was to improve the existing intersection configuration by adding two

The first alternative was to improve the existing intersection configuration by adding two

significant projects outside of the ROW should not be investigated in detail.

significant projects outside of the ROW should not be investigated in detail.

influences of the new 15-581 Project on these two intersections, and to investigate the ability

influences of the new 15-581 Project on these two intersections, and to investigate the ability
21. The project was a lengthy discussion dealing with the need for thorough analysis of the effects of the

Additional Options for Analysis

were proposed, A&D and push-button modifications will all be brought up to current requirements.

9. There was some discussion over the proposed sidewalk locations and the need to prioritize these

Pedestrian and Transit Options for Initial Alternatives

The current sidewalk locations were presented to the Board along with the proposed connections to

The design benefits from its avoidance of all historic resources, but the fact that the

New Interchange Options

This interchange will need to be addressed by the interchange

20. Traffic analysis noted the high volume in improving the existing roadways and

neighboring to allow pedestrian movement along the shoulders.

18. The current sidewalk locations were presented to the Board along with the proposed connections to

17. The new proposed ramp alignment for the completion of the interchange at Millard Road/Central
<table>
<thead>
<tr>
<th>Date</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/7/07</td>
<td>McCormick Taylor, Inc. Provide a write-up advertising the public meeting.</td>
</tr>
<tr>
<td>11/30/07</td>
<td>McCormick Taylor, Inc. Provide a write-up advertising the public meeting.</td>
</tr>
<tr>
<td></td>
<td>McCormick Taylor, Inc. Send McCormick a copy of the current sidewalk.</td>
</tr>
<tr>
<td></td>
<td>McCormick Taylor, Inc. Build Analysis.</td>
</tr>
<tr>
<td></td>
<td>McCormick Taylor, Inc. 3. Determine the specific effect of the 15-81</td>
</tr>
<tr>
<td></td>
<td>McCormick Taylor, Inc. 2. Amend the overview map with instructions.</td>
</tr>
<tr>
<td></td>
<td>McCormick Taylor, Inc. 1. Vertly and Provide the EFD and WP truck.</td>
</tr>
<tr>
<td>11/30/07</td>
<td>McCormick Taylor, Inc. Trindle et Sporling Hill Road to the 2030 No.</td>
</tr>
<tr>
<td></td>
<td>McCormick Taylor, Inc. Interchange Project on the CASH study area</td>
</tr>
<tr>
<td></td>
<td>McCormick Taylor, Inc. Amend the overview map with intersections.</td>
</tr>
</tbody>
</table>

**To be completed by:**

**Date Completed:**

---

**Follow up Items**

- **8pm:**
  - Sporling Hill Road, directly across from the Township building. The meeting will likely be between 1-7:30 PM.
  - Snow date of January 24th in the Hampton Township Emergency Services Building, 295 S.
  - Subsequent to the meeting, the Public Meeting was rescheduled for Wednesday, January 23rd with a

---

**Next Steps**

22. In preparing for the public meeting, no cost estimates should be shown, and the basic improvements should be shown and the basic improvements should be shown.
committee. **Action:**

The week. Once the effects of the interchanges are determined, the results will be discussed in the County to address the noted errors and the County will be providing an updated model map later in the week. These errors were noted in the vehicle path and loop assignments. These errors did not affect the traffic volumes on a macro scale, but on a micro scale, such as trip diversion, these errors may be expected to be addressed in future model runs.

2. At the last liaison meeting, the committee received the analysis of the effects of the changes the US 15/Pa 381/County Boulevard Interchange

**CLASH Circulation Study Report**

1. The purpose of the meeting is to provide an update and discussion of the analyses of the results of the intersection improvements and the efforts of a completed PA 381/County Boulevard Interchange and PA 15/Century Boulevard Interchange.

2. The meeting began with brief introductions and the distribution of handouts. Brian St. John and Brian Sl. John will explain the importance and benefits of the interchange and the strategies of the committee.

**MEETING DISCUSSION**

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melody Walker</td>
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</tr>
<tr>
<td>Gary Kine</td>
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<td><a href="mailto:gkine@msmary.edu">gkine@msmary.edu</a></td>
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<td>John Spencer</td>
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<tr>
<td>Kim Shorter</td>
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<tr>
<td>Chip Milbrand</td>
<td>717-761-0119</td>
<td><a href="mailto:cmilbrand@msmary.edu">cmilbrand@msmary.edu</a></td>
</tr>
</tbody>
</table>

**ATTENDANCE**

**Location:**

Hampden Township Building

**Time:**

9:00 AM

**Date:**

December 18, 2007

**Status Meeting**

CLASH Circulation Study
11. Laura Montgomery noted that the Canfield Sentinel and the Parton News would be contacted about

Adventosements for Public Meeting

Item #7. The committee suggested that a "Next Steps" board be added to the public meeting displays; Action

7. Text boxes at the bottom of the figures were included in the handouts that were distributed.

8. Brian St. John gave an overview of the presentation that he will give at the public meeting. It was

Public Meeting Presentation

Item #6. The committee suggested that a "Next Steps" board be added to the public meeting displays; Action

6. An example figure of the intersection improvement displays was shown to the committee. Brian St.

5. In discussing the truck travel displays, Brian St. John noted that a follow-up item to the last item

#6 and #7. The committee suggested that a "Next Steps" board be added to the public meeting displays; Action

#6 and #7. The committee suggested that a "Next Steps" board be added to the public meeting displays; Action

4. The setup and layout of the public meeting displays were shown to the committee in a power point

#6 and #7. The committee suggested that a "Next Steps" board be added to the public meeting displays; Action

3. The public meeting will be held at Hamden Township's Emergency Service building which is
MCCORMICK TYPHOE INC.  

Minutes Prepared by:  

This concludes these meeting minutes. Any revisions or additions to these meeting minutes should be sent within seven (7) working days of their receipt. At that time, they will become part of the official minutes of the meeting.

Minutes in prepared by:

The website: **Action Item #10**

The website: **Action Item #9**

**Municipalities up coming newsletters.**

The associated Municipalities' newsletters and up to include an announcement in the associated Municipalities' newsletters and up to include an announcement in the associated Municipalities' newsletters and up to include an announcement in the associated Municipalities' newsletters and up to include an announcement in the associated Municipalities' newsletters.

12 The committee also suggested that a press release be given to the Municipalities' newsletters to have a full article run on the project and up to come public meeting: **Action Item #8**
Follow up Items

<table>
<thead>
<tr>
<th>Action:</th>
<th>McCormick Taylor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provide a PDF of the final report so it can be posted on the County and the Associated Municipality's websites.</td>
<td></td>
</tr>
<tr>
<td>2. Provide a list of intersections with their associated numbers on the study area map.</td>
<td></td>
</tr>
<tr>
<td>3. Draft a letter inviting the public officials to the public meeting.</td>
<td></td>
</tr>
<tr>
<td>4. Show intersection numbers on the study area.</td>
<td></td>
</tr>
<tr>
<td>5. Provide a list of intersections with their associated numbers on the study area.</td>
<td></td>
</tr>
<tr>
<td>6. Add a &quot;Next Steps&quot; board to the public meeting.</td>
<td></td>
</tr>
<tr>
<td>7. Add a mailing address on the back of the public meeting displays.</td>
<td></td>
</tr>
<tr>
<td>8. Contact the local newspapers about running a full article in the project and the upcoming public meeting.</td>
<td></td>
</tr>
<tr>
<td>10. Provide a PDF of the final report so it can be posted on the County and the Associated Municipality's websites.</td>
<td></td>
</tr>
</tbody>
</table>

McCormick Taylor
The meeting began with brief introductions and the distribution of handouts. Brian Sl John explained that the purpose of the meeting was to review the public meeting and to discuss the intersections. 

The meeting was held in the final meeting for the CLASH Circulation Study Project.

### Review of Public Meeting

Improvement packages as developed by McCormick Taylor. The following intersections were held as the

Based on the Public Meeting Survey Responses, the following intersections should be looked at in their relationships

**CLASH Circulation Study**

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**ATTENDLES**

<table>
<thead>
<tr>
<th></th>
<th>Phone</th>
<th>EMAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian Sl John</td>
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</tr>
<tr>
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</tr>
<tr>
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<td>Grove Miler</td>
<td>717-564-6146</td>
<td><a href="mailto:grove.miler@mccormicktaylor.com">grove.miler@mccormicktaylor.com</a></td>
</tr>
<tr>
<td>John Eby</td>
<td>717-564-6146</td>
<td><a href="mailto:john.eby@mccormicktaylor.com">john.eby@mccormicktaylor.com</a></td>
</tr>
<tr>
<td>Hampden Township</td>
<td>717-540-6040</td>
<td><a href="mailto:hampd.township@hampd.org">hampd.township@hampd.org</a></td>
</tr>
<tr>
<td>Mark Orr</td>
<td>717-540-6040</td>
<td><a href="mailto:mark.orr@mccormicktaylor.com">mark.orr@mccormicktaylor.com</a></td>
</tr>
</tbody>
</table>

**DATE:** May 15, 2008

**TIME:** 1:00 PM

**LOCATION:** Hampden Township Building

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**MEETING DISCUSSION**

- Circus Pike/Market Street 32nd Street (US 11/15)
- Circus Pike and Spurting Hill Road
- True Road (PA 614) and Central Boulevard
- Circus Pike and St. John’s Church Road
- Circus Pike and Ors Bridge Road/Central Boulevard
- Circus Pike and Franklin Boulevard

For problem locations in the CLASH study area:

- Intersections
- Circulation
- Disruptions
- Traffic
- Signage

They Adams reminded the group that the intersections should be looked at in their relationships.
Formal would be best for the committee to provide: Action Item 2.

Review of Interchange traffic impacts

Within the framework of the planning study, CLASH would be used by TRI County RCP and what showed would be best for the planning process. A formal would look at recommendations from a committee such as CLASH. A formal would refine an evaluation or recognize and address the HATS process.

At the same time through the formal, HATS

Committee: Action Item 1.

Public Process/Meeting.

Brian would mail the formal cost estimates and packages to the entire Project Stakeholders, it was advised that the discussion of the information that was included. In addition, it was the absence of some of the CLASH.

The committee discussed and agreed that more information was needed to look over and talk through.

Brian provided the need to prioritize the intersection improvement packages and group them.

Concept Packages Development

The intersection concept development would be reviewed to move forward with the intersection improvements in place of public preference, rather than with prioritizing new intersection projects and the intersection cost estimates. The primary concern is with replacing bridges and the formal members.

Jeff discussed the committee that the DOT’s primary concern is with prioritization in the TIP process.

Suggested that any of the projects the MCV would be acceptable of funding in the current TIP process.

Jeff thanks the committee that there is potential funding available for some of the

Improvements.

The group discussed the comparison of the intersection concept versus the intersection shown in the developed concept as well as what if any improvements would be included in the concepts.

Brian discussed the most important is the interchange and directed the discussion to the right of way impacts as significant impacts in the interchange concept.

Brian expressed that was considered during the concept development and what was not considered. Mike expressed that was considered during the concept development and what was not considered.

Brian discussed that all of the interchange and intersection improvement packages.

Review of Interchange traffic impacts

Looking for alternate routes and congestion by the traffic volume on St. John’s Church Road.

Brenn reviewed the public’s suggestions for possible new routes and new lane configurations at

Intersections.

Several locations throughout the study area. A few of these did not occur at the specific study
At the request of the committee, the number of vehicles through each intersection (or some similar and adequate measure) should be used to develop a cost-benefit comparison. **Action Item 3.**

This will be used in addition to the information currently provided to assist in determining the priority of intersection improvements based partly on the number of people that will benefit from a specific improvement.

**Next Steps**

The committee members for their review; **Action Item 4.**

The final report was not discussed at the current meeting and such will not be presented to HATS on June 13, 2008. The draft version of the final report should be sent via email to the minutes of the meeting. The next steps will be discussed via email after all committee members have had time to review the information provided at this meeting.

**Final Report Schedule**

The final report was not discussed at the current meeting and such will not be presented to HATS on June 13, 2008. The final report was not discussed at the current meeting and such will not be presented to

**Minutes Prepared by:**

Brandon P. Stodart, MS, ET

**Action Item 3.**

This will be used in addition to the information currently provided to assist in determining the priority of intersection improvements based partly on the number of people that will benefit from a specific improvement.

**Next Steps**

The committee members for their review; **Action Item 4.**

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**Final Report Schedule**

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**Minutes Prepared by:**

Brandon P. Stodart, MS, ET

**Action Item 3.**

This will be used in addition to the information currently provided to assist in determining the priority of intersection improvements based partly on the number of people that will benefit from a specific improvement.
<table>
<thead>
<tr>
<th>Action</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Email a draft version of the final report to all committee members.</td>
<td>McCormick Taylor</td>
</tr>
<tr>
<td>2. Research how the results of the planning study from CLASH would be used by Tri-County RCP.</td>
<td>Al Sundara</td>
</tr>
<tr>
<td>3. Develop a cost-benefit comparison for each intersection package along with the overall cost estimates and improvements.</td>
<td>McCormick Taylor</td>
</tr>
<tr>
<td>To be completed by: McCormick Taylor</td>
<td></td>
</tr>
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</table>
**Intersection Installation Information:**

<table>
<thead>
<tr>
<th>Signal Head Size</th>
<th>Mast Arm Condition</th>
<th>Pedestrian Accommodations</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>good</td>
<td>good</td>
<td>Ped xings all legs - ramps on 2 corners - curb on 2 others</td>
<td>good</td>
</tr>
</tbody>
</table>

---

**Controller Assembly Information:**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Device Inventory Sheet</th>
<th>Performed by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multisensors 820A</td>
<td>Carlisle Pk, Van Patton &amp; Holiday Inn</td>
<td>DEM/WSB/BPS</td>
<td>May 3, 2007</td>
</tr>
</tbody>
</table>

---

- Controller: Multisensors 820A
- Device Inventory Sheet: Carlisle Pk, Van Patton & Holiday Inn
- Performed by: DEM/WSB/BPS
- Date: May 3, 2007
**Controller Assembly Information:**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Conflict Monitor</th>
<th>Detector Amps Number:</th>
<th>Detector Amps:</th>
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<tbody>
<tr>
<td>EDI NSM-12</td>
<td>EDI LM301</td>
<td>12 position backpanel</td>
<td>EDI LM301</td>
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<tr>
<td></td>
<td></td>
<td>14</td>
<td>EDI NSM-12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EDI LM301</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Good

---

**Intersection Installation Information:**

<table>
<thead>
<tr>
<th>Pedestrian Accommodations:</th>
<th>Mast Arm Condition:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No crossings on all legs</td>
<td>Good</td>
</tr>
</tbody>
</table>

**General Assembly Condition:**
- Good

---

**Equipment Inventory Sheet**

- Intersection: Carlisle Pk, Gateway & Ramps
- Date: May 3, 2007
- Performs by: DEM/WSB/BPS

---

**Notes:**
- Good