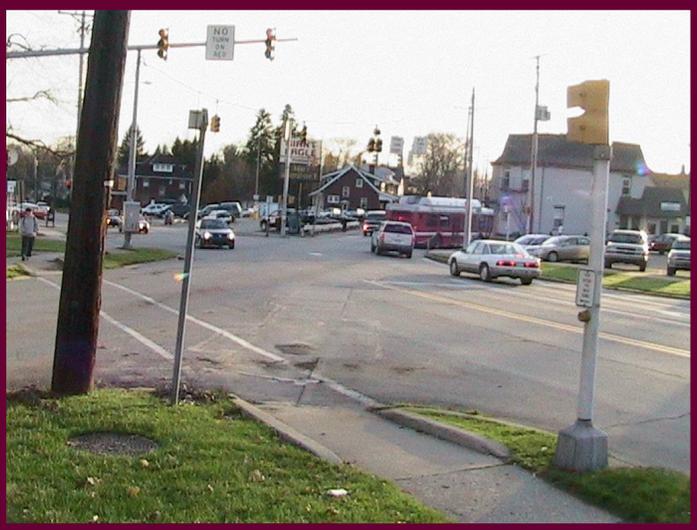


# INDIANA MULTIMODAL MOBILITY STUDY



SUBMITTED TO  
SOUTHWESTERN  
PENNSYLVANIA  
COMMISSION



DECEMBER 30, 2003

**HRG**  
Herbert, Rowland & Grubic, Inc.  
Engineering & Related Services



**GRANEY, GROSSMAN, COLISIMO & ASSOCIATES**  
A Community Development and Planning Partnership

# **INDIANA MULTIMODAL MOBILITY STUDY**

## **INDIANA COUNTY, PA**

PREPARED FOR:

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**DECEMBER 30, 2003**

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Arterial from Oakland Avenue to the bypass in the east with an average daily traffic volume of approximately 16,000 vehicles per day. The east-west roadway is the business route from Route 422 in the west to Route 119 in the east. The portion that overlaps with S.R. 286 serves as “Main Street” for



*Photo 1: Philadelphia Street*

Downtown Indiana. The roadway has parallel parking and pedestrian crossings throughout the business district. Within the study area, Philadelphia Street (see photo 1) is primarily comprised of 10-foot travel lanes with parallel parking and 4’-17’ sidewalks. Lanes transition frequently to turn lanes at side street intersections. Pavement markings include a double yellow centerline and white turn-lane dividing lines. The posted speed limit varies along Philadelphia Street within the study area. The speed limit is 40 miles per hour (mph) from Indian Springs Road to College Lodge Road, 35 mph from College Lodge Road to Station Avenue (railroad crossing), 25 mph from

Station Avenue to Second Street, and 35 mph east of Second Street.

Oakland Avenue (S.R. 286) (see photo 2) is a state roadway classified as a minor arterial with an average daily traffic volume of approximately 13,000 vehicles per day within the study area. The north-south roadway is the designated route from Route 422 in the south to the Indiana University of Pennsylvania campus to the north. Route 286 also extends to Saltsburg to the south. Throughout the study area, Oakland Avenue is primarily comprised of two 12-foot travel lanes with concrete curb. Concrete sidewalks (3’-5’) are included in the Indiana Borough area. Turn lanes are provided at some major intersections. Pavement markings include a double yellow centerline and white turn-lane dividing lines. The posted speed limit along Oakland Avenue is 35 miles per hour from Indian Springs Road to Thirteenth Street and 25 mph from Thirteenth Street to Philadelphia Street.



*Photo 2: Oakland Avenue*

Wayne Avenue (S.R. 4005) (see photo 3) is a state roadway classified as a principal arterial with an average daily traffic volume of approximately 7,600 vehicles per day within the study area. The north-south roadway connects Route 119 in the south to Route 286 in downtown Indiana in the north. Throughout the study area, Wayne Avenue is primarily comprised of two 12-foot travel lanes with concrete curb. Concrete sidewalks (4’-6’) are included in the Indiana



*Photo 3: Wayne Avenue*

Borough area. Pavement markings include a double yellow centerline and white turn-lane dividing lines. The posted speed limit along Wayne Avenue is 25 miles per hour north of Rose Street to Philadelphia Street and 45 mph south of Rose Street.

Average daily traffic volumes provided in the above discussion were obtained from PENNDOT 1999 Indiana County traffic volume maps and the roadway classifications were similarly found using PENNDOT functional classification maps.

**Study Area**

Within the study area for this project, the Committee identified the following intersections for detailed study. These intersections were selected based on perceived need and the availability of existing data.

<b>TABLE 1: STUDY INTERSECTIONS</b>	
<i>INTERSECTION</i>	<i>CONDITION</i>
1. Philadelphia Street and Third Street	Signalized
2. Philadelphia Street and Fourth Street	Signalized
3. Philadelphia Street and Fifth Street	Signalized
4. Philadelphia Street and Sixth Street	Signalized
5. Philadelphia Street and Seventh Street	Signalized
6. Philadelphia Street and Ninth Street/Oakland Ave	Signalized
7. Philadelphia Street and Eleventh Street	Signalized
8. Oakland Avenue and Church Street	Signalized
9. Oakland Avenue and Tenth Street	Signalized
10. Oakland Avenue and Eleventh Street	Signalized
11A. Oakland Avenue and Thirteenth Street	Signalized (Combined)
11B. Maple Street and Thirteenth Street	
12. Wayne Avenue and Carter Street	Unsignalized
13. Wayne Avenue and Maple Street	Signalized
14. Wayne Avenue and Seventh Street and Locust Street	Signalized
15. Oakland Avenue and Rose Street	Signalized
16. Oakland Avenue and Rustic Lodge Road	Signalized
17. Oakland Avenue and Indian Springs Road	Signalized
18. Oakland Avenue and Trader Horn Drive	Signalized
19. Oakland Avenue and Wal-Mart Driveway	Signalized
20. Oakland Avenue and Route 422 westbound off ramp	Unsignalized
21. Oakland Avenue and Route 422 eastbound off ramp	Signalized
22. Wayne Avenue and Rose Street	Signalized
23. Wayne Avenue and Indian Springs Road	Signalized
24. Rustic Lodge Road and Indian Springs Road	Signalized
25. Oakland Avenue and Grant Street	Unsignalized

## ***Existing Traffic Volumes***

This study was completed based on the PM peak hour time period because this was determined to be the most heavily traveled period of the day (additional studies would be required to quantify deficiencies during other peak and non-peak hours). Turning movement counts were taken from existing counts, where available, or conducted on weekdays from 4:00 p.m. to 6:00 p.m. during the weeks of April 15, 2003 and April 22, 2003, while IUP was in session. The traffic count data can be found in Appendix F. Figure 2 displays the existing PM peak hour traffic volumes in the study area.

## ***Capacity Analyses***

Capacity analysis, as defined by the Highway Capacity Manual (2), is a set of procedures used to estimate the traffic-carrying ability of a facility over a range of defined operational conditions. The capacity analysis uses ***Levels of Service*** (LOS) to describe operational conditions. Levels of Service are assigned letter designations “A” through “F,” with “A” being the most desirable operating conditions. Level of Service “E” is considered to be at or near capacity, while Level of Service “D” is generally considered acceptable in urban areas. The LOS criteria for unsignalized intersections and signalized intersections are given in Table 2 and 3, respectively.

At unsignalized intersections, level of service measures the ability of turning traffic to find gaps in the major street traffic flow that permit successful completion of the desired turning movement. The critical movements at unsignalized intersections are the left turns from the major street and both egress movements from the minor street.

<b>TABLE 2: UNSIGNALIZED INTERSECTIONS – LOS CRITERIA</b>		
<b><i>AVERAGE CONTROL DELAY (SEC/VEH)</i></b>	<b><i>LEVEL OF SERVICE</i></b>	<b><i>EXPECTED DELAY TO MINOR STREET TRAFFIC</i></b>
< 10	A	Little or no delay
> 10 and < 15	B	Short traffic delays
> 15 and < 25	C	Average traffic delays
> 25 and < 35	D	Long traffic delays
> 35 and < 50	E	Very long delays
> 50	F	*

\*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing, which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvements to the intersection. LOS “F” is considered to be unacceptable to most drivers.

For signalized intersections, the level of service measures the average control delay per vehicle. Also, the volume-to-capacity ratio, which is a ratio of the peak hour traffic volumes for a facility to the theoretical maximum traffic volume the facility can handle, relates to the level of service of a facility.

<b>TABLE 3: SIGNALIZED INTERSECTIONS – LOS CRITERIA</b>		
<i>AVERAGE CONTROL DELAY (SEC/VEH)</i>	<i>LEVEL OF SERVICE</i>	<i>EXPECTED DELAY TO MINOR STREET TRAFFIC</i>
< 10	A	Little or no delay
> 10 and < 20	B	Short traffic delays
> 20 and < 35	C	Average traffic delays
> 35 and < 55	D	Long traffic delays
> 55 and < 80	E	Very long delays
> 80	F	*

\*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing, which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvements to the intersection. LOS ‘F’ is considered to be unacceptable to most drivers.

Capacity analyses were performed at each of the study intersections using Synchro (3) software. The analyses were conducted based on the traffic volumes, intersection controls, and lane configurations for the PM peak hour. Worksheets for the level of service/capacity analyses for existing conditions are included in Appendix G. Refer to Figure 2 and Appendix G for a detailed summary of the PM peak hour existing levels of service at the study intersections by approach.

<b>TABLE 4: EXISTING CONDITIONS LEVEL OF SERVICE SUMMARY 2003 PM PEAK HOUR</b>		
<i>INTERSECTION</i>	<i>CONDITION</i>	<i>OVERALL LOS</i>
1. Philadelphia Street and Third Street	Signalized	B
2. Philadelphia Street and Fourth Street	Signalized	C
3. Philadelphia Street and Fifth Street	Signalized	B
4. Philadelphia Street and Sixth Street	Signalized	B
5. Philadelphia Street and Seventh Street	Signalized	B
6. Philadelphia Street and Ninth Street/Oakland Ave	Signalized	C
7. Philadelphia Street and Eleventh Street	Signalized	B
8. Oakland Avenue and Church Street	Signalized	B
9. Oakland Avenue and Tenth Street	Signalized	A
10. Oakland Avenue and Eleventh Street	Signalized	E
11A. Oakland Avenue and Thirteenth Street	Signalized	E
11B. Maple Street and Thirteenth Street	Signalized	B
12. Wayne Avenue and Carter Street	Unsignalized	N/A
13. Wayne Avenue and Maple Street	Signalized	C
14. Wayne Avenue and Seventh Street and Locust Street	Signalized	F
15. Oakland Avenue and Rose Street	Signalized	D
16. Oakland Avenue and Rustic Lodge Road	Signalized	C
17. Oakland Avenue and Indian Springs Road	Signalized	D
18. Oakland Avenue and Trader Horn Drive	Signalized	A
19. Oakland Avenue and Wal-Mart Driveway	Signalized	C
20. Oakland Avenue and Route 422 westbound off ramp	Unsignalized	N/A
21. Oakland Avenue and Route 422 eastbound off ramp	Signalized	C

<b>TABLE 4: EXISTING CONDITIONS LEVEL OF SERVICE SUMMARY 2003 PM PEAK HOUR</b>		
<i>INTERSECTION</i>	<i>CONDITION</i>	<i>OVERALL LOS</i>
22. Wayne Avenue and Rose Street	Signalized	B
23. Wayne Avenue and Indian Springs Road	Signalized	C
24. Rustic Lodge Road and Indian Springs Road	Signalized	A
25. Oakland Avenue and Grant Street	Unsignalized	N/A
<b>BOLD</b> – Unacceptable (LOS E or F)		
N/A – Overall Level of Service not applicable on unsignalized intersections		

A summary of the findings of the capacity analyses, specifically addressing any deficiencies found under existing conditions, is as follows:

**Philadelphia Street** – The signalized study intersections on Philadelphia Street were all found to operate at acceptable Levels of Service during the PM peak hour with the following exception:

- **Philadelphia Street and Fourth Street** – The eastbound (Philadelphia Street) left turn movement operates at unacceptable LOS E. *Mitigation of the existing deficiency can be accomplished by assigning more green time (2 seconds) to the protected/permissive left turn movement.*

**Oakland Avenue** – The signalized study intersections on Oakland Avenue were all found to operate at acceptable Levels of Service during the PM peak hour with the following exceptions:

- **Oakland Avenue and Eleventh Street** – The westbound (Oakland Avenue) movement operates at unacceptable LOS F. *Mitigation of the existing deficiency can be accomplished by constructing an exclusive westbound left turn lane. PENNDOT is currently proposing the addition of left turn lanes east and west on Oakland Avenue and northbound on South Eleventh Street as part of the Oakland Avenue widening project.*

- **Oakland Avenue and Thirteenth Street** (see photo 4) – Overall, the signalized intersection was found to have unacceptable operation in the existing condition (LOS E). Several movements operate at unacceptable levels (the eastbound Oakland Avenue left-through and right turn movement, the eastbound approach, the northbound Thirteenth Street left turn movement, the northbound approach, the southbound Thirteenth Street through-right turn movement, and the southbound approach). *Additional analysis is required at this location to determine if retiming the coordinated traffic*



Photo 4: Oakland Avenue & Thirteenth Street

*signal with Maple Street and Thirteenth Street and adding protected/permissive left turn phasing in the eastbound direction on Oakland Avenue would be acceptable mitigation. Evaluation of the appropriateness of a roundabout in this location could also be considered. The level of detailed analysis required is beyond the scope of this project.*

- **Maple Street and Thirteenth Street** – The northbound (Thirteenth Street) left-right movement operates at unacceptable LOS F. *Again, mitigation of the existing deficiency is likely to be mitigated by retiming the coordinated traffic signal with Oakland Avenue and Thirteenth Street. The level of detailed analysis required is beyond the scope of this project.*
- **Oakland Avenue and Rose Street** – The northwest (Rose Street) movement operates at unacceptable LOS E. *Mitigation of the existing deficiency can be accomplished by optimizing the traffic signal timing to give more time to the Rose Street movement.*
- **Oakland Avenue and Indian Springs Road** – The intersection is over capacity with multiple movements (eastbound left and through, westbound left, northbound left, southbound through) operating at unacceptable LOS F. *Mitigation of the existing deficiency would require an additional through lane in each direction, or alternatively, the addition of a through lane in each direction on Oakland Avenue combined with splitting the side street phases.*

**Wayne Avenue** – The study intersections on Wayne Avenue were all found to operate at acceptable Levels of Service during the PM peak hour with the following exceptions:

- **Wayne Avenue and Maple Street** – The eastbound (Maple Street) left-through movement operates at unacceptable LOS E. *Mitigation of the existing deficiency can be accomplished by constructing an exclusive eastbound left turn lane or alternately assigning more time to the east/west phase of the signal.*

- **Wayne Avenue and Seventh Street/Locust Street** – (see photo 5) The signalized study intersection was found to have overall unacceptable operation in the existing condition (LOS F). The northeastbound (Wayne Avenue) left-through-right movement operates at unacceptable LOS F. The southwestbound (Wayne Avenue) left-through-right movement operates at unacceptable LOS E. *Mitigation of the existing deficiency can likely be mitigated by retiming the traffic signal to assign more time to the southwest phase on Wayne Avenue and adding a left turn lane with protected/permissive left turn phasing in the*



Photo 5: Wayne Avenue & Seventh St/Locust St

*northeastbound direction on Wayne Avenue. Reduction in legs of the intersection via roadway closures or redirections away from the intersection could also be considered.*

### **Crash Analysis**

Indiana Borough previously completed a crash summary from 1995-1999. This information is referenced in this study as it focused on Vehicle-Bicycle-Pedestrian accidents taken from Indiana Borough Police Reports. It also included graphical accident occurrence mapping, which is contained in Appendix B and a detailed summary for each crash categorized according to location, date and type of crash.

A trend or pattern was determined to be present when five or more of the same type of accident occurred at a particular intersection in a twelve-month period. The following table is a summary of the number of crashes found at the applicable study intersections:

<b>TABLE 5: CRASH SUMMARY- STUDY INTERSECTIONS</b>			
<i>No.</i>	<i>INTERSECTION</i>	<i>ACCIDENTS (1995-1999)</i>	
		<i>TOTAL</i>	<i>AVERAGE</i>
1.	Philadelphia Street and Third Street	22	4.4
2.	Philadelphia Street and Fourth Street	21	4.2
3.	Philadelphia Street and Fifth Street	15	3.0
4.	Philadelphia Street and Sixth Street	<b>30</b>	<b>6.0</b>
5.	Philadelphia Street and Seventh Street	11	2.2
6.	Philadelphia Street and Ninth Street/Oakland Ave	16	3.2
7.	Philadelphia Street and Eleventh Street	22	4.4
9.	Oakland Avenue and Tenth Street	7	1.4
10.	Oakland Avenue and Eleventh Street	12	2.4
11A.	Oakland Avenue and Thirteenth Street	17	3.4
12.	Wayne Avenue and Carter Street	1	0.2
13.	Wayne Avenue and Maple Street	22	4.4
14.	Wayne Avenue and Seventh Street and Locust Street	8	1.6
<b>BOLD – Significant accident history (&gt;5 accidents per year)</b>			

Additionally, significant crash histories were found at the following intersections and roadway segments:

<b>TABLE 6: OTHER SIGNIFICANT LOCATIONS - CRASH SUMMARY</b>		
<i>INTERSECTION/ROADWAY SEGMENT</i>	<i>ACCIDENTS (1995-1999)</i>	
	<i>TOTAL</i>	<i>AVERAGE</i>
Philadelphia Street: Between 3 <sup>rd</sup> and 4 <sup>th</sup> Street	<b>45</b>	<b>9</b>
Philadelphia Street: Between 4 <sup>th</sup> and 5 <sup>th</sup> Street	<b>27</b>	<b>5.4</b>
Philadelphia Street: Between 5 <sup>th</sup> and 6 <sup>th</sup> Street	<b>76</b>	<b>15.2</b>

<b>TABLE 6: OTHER SIGNIFICANT LOCATIONS - CRASH SUMMARY</b>		
<i>INTERSECTION/ROADWAY SEGMENT</i>	<i>ACCIDENTS (1995-1999)</i>	
	<i>TOTAL</i>	<i>AVERAGE</i>
Philadelphia Street: Between 6th and 7 <sup>th</sup> Street	<b>65</b>	<b>13</b>
Philadelphia Street: Between 7th and 8 <sup>th</sup> Street	<b>36</b>	<b>7.2</b>
Philadelphia Street: Between 11th and 12 <sup>th</sup> Street	<b>26</b>	<b>5.2</b>
Oakland Avenue: Between South 13th St and Fisher Avenue	<b>25</b>	<b>5</b>
Oakland Avenue: Between Fisher Avenue and Grant Street	<b>26</b>	<b>5.2</b>
Wayne Avenue: Between Maple Street and Grant Street	<b>29</b>	<b>5.8</b>
Wayne Avenue at Grant Street	<b>37</b>	<b>7.4</b>
North 6 <sup>th</sup> Street at Water Street	<b>32</b>	<b>6.4</b>
<b>BOLD</b> – Significant accident history (>5 accidents per year)		

Significant pedestrian and bicycle accidents are also depicted graphically in Appendix B.

Clusters of pedestrian accidents were noted mid-block on Philadelphia Street between the intersections of Fifth and Sixth Streets, Sixth and Seventh Streets, and Seventh and Eighth Streets, corresponding to mid-block cross walk locations (see photo 6 – the pedestrian signage was instituted after the accident study). Additionally, pedestrian accidents were clustered at the intersections of Philadelphia Street and Fourth Street, Sixth Street, and Eighth Street, as well as Wayne Avenue and Grant Street and Sixth Street and Grant Street. Bicycle accidents were widespread with multiple incidents along Oakland Avenue, Philadelphia Street, Fourth Street and Sixth Street.



*Photo 6: Mid-block pedestrian crossing on Philadelphia Street*

Additional items to note from the total crash summaries reviewed in the database:

- 2.5% involved pedestrians
- 1.5% involved bicycles
- 96% involved passenger cars
- 20% involved injuries (0.1% fatalities)

### ***Major Issues***

The existing conditions in the study area were further detailed by conducting interviews with key personnel from the agencies represented on the Project Advisory Committee. Minutes from the interviews are included in Appendix C.

From these interviews, recurrent concerns in the study area were apparent. These concerns were summarized and presented at Project Advisory Committee Meeting #2. The list of items is included with the minutes in Appendix A and shown graphically in Figure 1, Major Issues Map. The results, grouped under major issues, and the total points (votes) for each item were as follows:

<b>TABLE 7: MAJOR ISSUES SUMMARY RESULTS</b>	
<i>ISSUE</i>	<i>TOTAL POINTS</i>
<b>Indiana University of Pennsylvania</b>	
Regional Development Center – Regional development core	8
“Captive Audience” in terms of parking and traffic (University could enforce many aspects of traffic and parking that the market could not)	0
Pedestrian-oriented central campus (street closings)	0
<b>The Re-Opening of the Rail Lines</b>	
Truck traffic removed from selected arterials	1
Periodic delays at numerous crossings	1
Potential quality of life conflicts	1
Loss of pedestrian access to potential ROW	0
<b>Downtown Indiana</b>	
Pedestrian/Vehicle conflicts	4
Parking	3
Connecting Downtown physically with the IUP-related market	
Philadelphia Street signalization/lane changes/offset intersection	
<b>Wayne and Oakland Avenue</b>	
Different land use policies of the two municipal jurisdictions	3
Periodic congestion	0
Gateways to community (appearance, etc.)	0
<b>Other Issues</b>	
Inter-agency communications	5
General land use policies and ordinances	5
One-way streets/circulation in Borough of Indiana	1
Public Transit	0
Enforcement issues (Borough enforcement on State routes)	0

In addition to the tabular listing, individuals were also able to place votes on issues indicated on a Major Issues Map (included as Figure 1). The results and the total points (votes) for each item were as follows:

<b>TABLE 8: MAJOR ISSUES MAP RESULTS</b>	
<i>ISSUE</i>	<i>TOTAL POINTS</i>
Wayne Avenue	9
- Congestion	
- Possible new development	

<b>TABLE 8: MAJOR ISSUES MAP RESULTS</b>	
<i>ISSUE</i>	<i>TOTAL POINTS</i>
IUP Campus - Promote pedestrian campus - Potential street closures	5
Oakland Avenue - Congestion/delay - Lack of turning lanes - Designated route to IUP	5
Railroad - 13 crossings in Borough - Projected 7-minute delay - Removal of truck traffic	3
Philadelphia Street - Signalization offset intersection	0
Philadelphia Street - Changing lane patterns - Outdated signals - State-owned	0
Borough Streets - One-way/two-way traffic - On-street parking (metered/non-metered) - Minimal off-street parking	0



*Photo 7: Railroad tracks crossing Philadelphia Street (rail line to be reactivated).*

Key issues identified by the Advisory Committee included:

- The impact of the Regional Development Center on Wayne Avenue
- The reactivation of the railroad through Indiana (see photo 7).

Both issues should be closely monitored to mitigate any traffic impact to the study area.

Based on the Advisory Committee issue identification and prioritization, the following four issues were identified as the focus of this project:

1. *A qualitative evaluation of Bicycle and Pedestrian mobility.*
2. *A model of possible geometric improvements to Route 286 (Oakland Avenue).*
3. *General improvements on Philadelphia Street.*
4. *Identify limits of impact of proposed Regional Development Center on Wayne Avenue.*

## **FUTURE GROWTH AND DEVELOPMENT**

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### ***Demographic Trends***

Demographic analysis is a tool utilized by planners to examine the nature of a local population and how that relates to future growth and development. Ultimately, a good understanding of demographic trends can be utilized to estimate the future population of a community by preparing a mathematical projection. In turn, the analysis can be used to gauge future land use and transportation trends, thereby basing decisions about the future within the context of current realities. For example, a rapidly growing population will need land and infrastructure to accommodate projected growth.

Any projection or forecast is only an educated guess about the future. Parts of the guess are based upon past demographic and economic trends. This is utilized to create demographic projections, which are mathematical models of what might happen if trends continue (or change). The projections are best coupled with an attempt to analyze land use or community facility situations that may restrict or enhance growth potential. For example, even in a growing community, if there is no available land, projected growth may actually happen in a neighboring community. The following is such an analysis for Indiana Borough and White Township.

**Past Trends:** If the Census of 1990 and 2000 are both reasonably correct, the 1990' s were characterized by stability, with a general population exchange between the two municipalities (the Borough's population loss being nearly equal to the Township's population gains). This does not necessarily mean that every Indiana Borough resident moved to White Township, though some may have. Population loss has been the norm for many Pennsylvania boroughs, mostly due to declining household size and lack of land for new development.

<b>TABLE 9: POPULATION SUMMARY</b>			
<b>Place</b>	<b>1990 Population</b>	<b>2000 Population</b>	<b>Numeric Change</b>
Indiana Borough	15,174	14,895	-279
White Township	13,788	14,034	+246
Total	28,962	28,929	-33

Though the population of Indiana Borough grew smaller, and White Township gained residents, both communities gained in housing units.

<b>TABLE 10: HOUSING UNITS SUMMARY</b>			
<b>Place</b>	<b>1990 Housing Units</b>	<b>2000 Housing Units</b>	<b>Numeric Change</b>
Indiana Borough	4,803	5,096	+293
White Township	5,777	6,553	+776
Total	10,580	11,649	+1,069

In fact, in spite of relatively stable population growth, the combined communities gained over 1,000 housing units during the 1990' s. The major reason for this is the continual shrinking of household size, which has been nearly a uniform change across the United States in the past few decades. In past generations, more children per family were typical. Older relatives lived with nuclear families. Boarders congregated in lodging houses. Even college students were content to crowd three or four persons into a large room. The typical situation today is a much smaller household. Such a household may be a single mom with kids, an older person living alone, or a single college student in a one-bedroom apartment, but more housing units are now typically housing fewer persons. This trend can be expected to continue.

**Projected Growth:** In discussion with Indiana Borough staff, White Township staff, and planners at the Southwestern Pennsylvania Commission, it was decided to create projections based upon the relationship between local building permits and land use trends, combined with the overall forecasts created by SPC. This projection is based upon several factors, primarily:

1. Stable continuing IUP enrollment.
2. Continued historic rates of growth in White Township 50-80 units per year.
3. Continuation of shrinking household size, with smaller households of older persons, and more students occupying apartments with fewer roommates.
4. Reliance upon the accuracy of the SPC series projections on a county-wide basis.
5. Older houses in Indiana Borough becoming attractive to families, as students congregate in new units designed for smaller households.

<b>TABLE 11: PROJECTED POPULATIONS</b>				
<b>Place</b>	<b>2002 Population (Estimated)</b>	<b>2010 Population</b>	<b>2020 Population</b>	<b>2025 Population</b>
Indiana Borough	15,326	15,029	15,737	16,145
White Township	18,904	20,376	21,986	22,676
<b>Total</b>	<b>34,230</b>	<b>35,405</b>	<b>37,723</b>	<b>38,821</b>

Such changes in population will also affect changes in households. It is believed that due to changes in student living preferences, as indicated by Census drops in number of persons per non-family households, the typical student household could fall to as small as 1.7 persons per household by 2010. From the vantage of planning for future growth and development, the real issue will be how many cars will be added to the local road system, how much land the new development will require, and where it will happen. The bottom line is that, if the anticipated projections come true, the study area will need to accommodate about 1,300 new housing units over the next ten years, and a total of 2,600 housing units over the next 20 years.

<b>TABLE 12: PROJECTED HOUSING UNIT GAINS IN INDIANA BOROUGH AND WHITE TOWNSHIP</b>			
<b>Indiana Borough</b>		<b>White Township</b>	
<b>Year 2010</b>	<b>Year 2020</b>	<b>Year 2010</b>	<b>Year 2020</b>
+420 Multi-Family Units	+614 Multi-Family Units	+160 Multi-Family Units	+145 Multi-Family Units
+0 Single-Family Units	+264 Single-Family Units	+610 Single-Family Units	+337 Single-Family Units

This residential development will almost inevitably bring some commercial development. However, a preliminary assessment of the area indicates that major commercial development may not be likely. The Indiana/White Township area already has more stores per capita than the Commonwealth of Pennsylvania as a whole. Sales per capita lag behind the Commonwealth, but this indicates perhaps a combination of lower local incomes and a preponderance of smaller businesses. The projection assumes some continued growth, but no major influx of retail business.

***Existing Land Use Issues***

**Land Use and Future Growth and Development:**

If the projections in the previous section come true, each community will develop differently. In White Township, new development is mostly building upon previously vacant tracts. In Indiana Borough, new development is more accurately described as redevelopment, where buildings are torn down and newer ones erected.

Residential growth will also take different forms. Within proximity to the University, new development will likely be multiple tenant apartment buildings for student occupancy. It might be expected that more in the future will be built as one bedroom, single room occupancy or efficiency units, consistent with declining household size. They will be built as near to the bounds of the IUP campus as local land use regulations will allow. It may be likely that the classic “college town housing” (older, former single family homes shared by several students) will give way to greater numbers of newer units in larger multi-tenant complexes. Over time, some of the mixed single-family/student-occupied neighborhoods within Indiana Borough may be more available for occupancy by non-student (family) households.

It is likely that the majority of units built in White Township further from the University over the next 10-15 years will be single-family dwellings intended for owner occupancy. One of the only major changes that could affect these trends would be the lack of sites for student apartments in Indiana Borough. A second trend, which could affect this, would be the development of some additional elderly or “empty nester” oriented developments (such as St. Andrew’s Village). In spite of usable tracts elsewhere, the vast majority of development will most likely continue to occur within or near the “golden arc” of Wayne/Oakland/Philadelphia, and will be of a mixed-use character within both the Borough and Township.

As previously mentioned, new major commercial development is not foreseen in the forecast (major commercial being defined as stores such as very large shopping centers). However, some scenarios are likely. In the Oakland Avenue corridor (and to a lesser extent along Wayne Avenue) there are some commercial buildings that are underutilized and/or nearing the end of their amortization life. It is wholly likely that these facilities will be replaced by new commercial buildings, or refurbished. This will attract new tenants and increase traffic flows. Any population growth will bring some commercial development as well. For the purposes of traffic analysis, an eight percent increase in traffic is projected, based upon these two factors.

New light industrial or office park development is very hard to project, as it is based upon a complexity of economic and site factors. For the purposes of this study, it was assumed that any major new developments of this type would be drawn to the area of the Jimmy Stewart Airport. This would place the traffic impacts of any such development largely outside the present “golden arc” area. Most communities view this form of development as desirable, and competition for such businesses is intense. Whether such development comes to the study area will be dependent on local availability of turnkey sites, and general business assistance packages.

The basis of these estimates is the nature of existing land use in each community at present. To get an understanding of current land use, the consultant team walked or drove the entire study area. A generalized existing land use issues map is included in Figure 3. Some of its features are worthy of mention. An interesting aspect of local urban design is how the University and the Borough intersect. The Borough of Indiana was laid out in a traditional grid system. From the perspective of traffic operations, the grid system has the theoretical advantage of equalizing traffic usage, because vehicular traffic has any number of options in reaching respective destinations. In Indiana, the grid system is interrupted by the fact that main traffic routes to reach the campus intersect the grid system at oblique angles. Therefore, most vehicular traffic will reach the University from either Wayne or Oakland Avenue. Had the grid been preserved, the choice of Wayne, Oakland, Ninth, Eight, and Seventh might have been viable ways to reach campus.

### **Analysis of Existing Land Use Ordinances**

One factor that has a significant influence on how communities look is the design and function of local land uses is regulation. Local governments implement numerous design standards through adopted land use ordinances. The standards chosen by communities can have an enormous impact on how transportation systems within a community work. Therefore, it is important to have an understanding of what these ordinances can accomplish, and what the effect of existing ordinances may have been. The following represents an analysis of local ordinances. It is written from a planner’s point of view, so it is not a legal analysis.

In Pennsylvania, the most common land use regulations are the zoning ordinance and the subdivision and land development ordinance (frequently abbreviated as the SALDO). The power to pass such ordinances is granted by the Commonwealth of Pennsylvania through the Pennsylvania Municipalities Planning

Code. The Planning Code also places some limitations upon what each type of ordinance can regulate, and minimum standards of what it must contain. Basically, the zoning ordinance may regulate the categorical type of use of land, density, building size, parking spaces required, signs, and required yards or setbacks. No part of a community may be left unzoned (except by a County), though all of the standards may be different for each district within the community. The SALDO only regulates subdivisions, which involve the creation of new lots, and “land developments” which are defined by the planning code as generally any new commercial, industrial, or multi-family residential dwellings. The subdivision and land development ordinance typically regulate new streets built by developers, and may regulate lot size and setbacks in the absence of zoning. However, these must be enforced uniformly throughout the municipality, and cannot have different standards for different districts as a zoning ordinance would.

These regulations are very important because land use and transportation are intertwined. As a general rule, high traffic roads discourage the location of many residential uses, especially single family dwellings. These same roads will encourage some commercial activities to locate there. The standards adopted by a community for parking and street design will affect how traffic flows, and whether the community is a safe and convenient place to drive or walk.

At the time of this writing, the Borough of Indiana has both a SALDO and a zoning ordinance. White Township relies solely upon its SALDO. The County of Indiana also has a subdivision and land development ordinance, but it has no force in those communities where the Township or Borough has adopted their own ordinance.

### **Indiana Borough Zoning Ordinance**

Some zoning ordinances are more tabular in format, and have charts, and tables of allowed uses and activities. Generally, Indiana Borough has a narrative form of ordinance, with most of the regulations in written paragraphs. The text is dense and has been written for utmost specificity. The ordinance provides for eight districts: three residential, one transitional, two commercial, one institutional, and one industrial district. The ordinance contains a very detailed list of uses (for example, specific commercial, “leather goods and luggage sales,” “catalog stores,” upholsteries”). The ordinance has modest lot requirements, which is to be expected in an older, pedestrian-oriented community. Thus the overall standards are appropriate for the context of the ordinance. The zoning ordinance also integrates floodplain and stormwater management provisions, which is slightly unusual, but not unknown in Pennsylvania (many communities have separate stormwater management or floodplain regulations).

#### *Transportation Specific Comments*

- Parking
  - C-1 (Downtown area exempted) - this is typical in dense areas where there is publicly owned or subsidized parking.

- Parking requirements must be met when any use is “erected, enlarged, or increased in capacity.”
- Common (shared) parking is permitted
- The standard space required is 9’ x 18’ (can vary based upon design standards of lot)
- One handicapped space is required for every 25 spaces (or fraction thereof) (handicapped spaces also required by portions of both the Fair Housing Act and Americans With Disabilities Act). See 28 CFR Part 36 (Department of Justice) or <http://www.access-board.gov/publications/6-parking/a.11.htm>
- The ordinance contains detailed design and paving requirements
- Off-site parking is permitted by lease within 250 feet of site
- Spaces required:
  - Single-family dwelling – 1
  - Multi-family dwelling – 2 per each 3 residents
  - Office – Ranges from 1 space to 200 square feet per building to 1 space per 1,600 square feet per building
  - Retail – Typically 1:300 square feet
  - Funeral – 19 (parlor)
  - Manufacturing – 2 per each 3 employee per shift
- Off-street loading (required after 5,000 square feet floor area)

### **Indiana Borough Subdivision and Land Development Ordinance**

The Borough ordinance dates from 1962, and was last amended in 1969. This is not atypical of a Borough where subdivision is a less common activity than redevelopment of various sorts of previously developed land.

- *Highlights of Indiana Borough Ordinance:*
  - Empowered by Borough Code-not MPC
  - Minor Subdivision – 5 or fewer lots
  - “Street and Alley layout shall conform to the Traffic Plan.....”
  - New lots larger than one acre must leave room for re-subdivision.

- Street ROWS
  - Major – 80 feet
  - Collector – 66 feet
  - Minor – 50 feet
  - Marginal Access – 40 feet
  - Alley – 20 feet
  
- Pavement widths specified:
  - Major – 50 feet
  - Collector – 38 feet
  - Minor – 34 feet
  - Marginal Access – 20”
  - Alley – 20 feet
  
- Site distances from 150 feet to 600 feet
  
- 500 feet – limit on length of dead-end streets, with 50-foot cul-de-sac
  
- Private roads are strongly discouraged
  
- Required tree planting between sidewalk and cartway
  
- No standards for land development

### **White Township Subdivision and Land Development Ordinance**

The ordinance was initially adopted in 1980, and has been periodically amended (most recently in 2000). Overall, the ordinance is modern in format and a very cursory examination shows consistency with the Pennsylvania Municipalities Planning Code, particularly in the manner of addressing land development. If the ordinance is unusual, it is in the high level of attention paid to standards for particular forms of land development. In this way, it contains zoning-like standards, without the geographic limitations of zoning.

- *Transportation-Related Issues:*

- Streets

- Offsetting discouraged (150 feet required between cross streets)
  
    - “Arrangements shall make provision for the direct continuation of the principal existing streets in adjoining subdivisions.”
  
    - Planning Commission may require arrangement of streets to facilitate later subdivisions

- 1,320-foot intervals between streets accessing Federal or State highways

#### Design of Streets

- 50-foot right-of-way
- Cartway width – 20 feet to 34 feet dependent upon use and lot width
- Maximum slope of streets – 10 percent
- 1,000-foot cul-de-sac with 80-foot turnaround. Center paving not required (gravel permitted)
- Dead-end streets may service 50 to 62 dwelling units, dependent upon density
- Private roads may only serve 2 properties, 25-foot easement
- 1,200-foot block unless mid-block pedestrian connectors are created

#### Other Design Standards

- 75-foot setback from all State and Federal roads (from centerline)
- Sidewalks, “if provided by the developer or required by the Board of Supervisors.”

- *Specific Forms of Land Development*

#### Multiple-Family Residential:

- Sidewalks required between buildings and parking; may be required to provide bus stops
- 10’ x 18’ parking space
- Parking lot access lanes must meet minimum width criteria.
- Parking within 200 feet of use
- Parking area surface “stabilized dust-free, all-weather”
- Township may generally review vehicular access internal circulation, and ability of abutting streets to handle flow

#### Commercial Industrial

- Parking requirements – Retail Services – 1 space to 200 square feet of building
- Restaurant – 1 space to 2 patrons maximum occupancy

- Industrial – 1 space per employee on largest shift or 1:500 square feet
- Lanes and space designs match type of parking
- Access points linked to frontage
  - 100-foot frontage = 1 access point
  - 100-foot to 300 foot frontage = 2 access points
  - 300+-foot frontage = 3 access points
- Stacking area of up to 90 feet may be required
- Sidewalks may be required in parking lots

## **FUTURE TRANSPORTATION SYSTEM**

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### ***Trip Generation and Distribution***

The following land uses in the ITE’s Trip Generation, Sixth Edition were used to project future traffic volumes based on the projected growth.

<b>TABLE 13: ANTICIPATED TRIP GENERATION VOLUMES</b>				
<b><i>ITE LAND USE</i></b>	<b><i>ITE CODE</i></b>	<b><i>PM PEAK HOUR TRIP GENERATION RATE (TRIPS PER UNIT)</i></b>		
		<b><i>IN</i></b>	<b><i>OUT</i></b>	<b><i>TOTAL</i></b>
Single Family Residential	210	0.65	0.36	1.01
Multi Family Residential	220	0.42	0.20	0.62
Commercial	820	+8% of existing		

The distribution of trips generated in the future was based on existing traffic patterns in the study area and the location of the projected growth in relation to the study intersections. Figure 4 shows the new trip volumes projected. Details of the trip distribution and assignment analyses can be found in Appendix H.

### ***Future Roadway Network***

Several major changes to the local roadway network are anticipated in the future. This includes:

- Widening of Oakland Avenue from Fisher Avenue to Washington Street,
- Congestion study of the Route 286 Corridor in White Township,
- Extension of Rose Street to the north,
- Improvements to Wayne Avenue related to the new Regional Development Center.

However, for analysis purposes, the future roadway network was assumed to be identical to that described under existing conditions. This was done in order to be conservative in the analysis as these future projects are currently in the planning stages, and the extent of the improvements is not currently known. The future improvements will be evaluated separately.

### ***Future Traffic Volumes***

In order to establish future traffic volumes, the existing traffic volumes were factored to project the volumes for the 10-year horizon year in 2013, before considering the increased traffic volumes from proposed development. Significant background growth was not projected, however to obtain these future volumes, a conservative annual growth factor of 0.5% was used. This growth factor was derived based on discussions with the Southwestern Pennsylvania Commission.

### ***Capacity Analyses***

Capacity analyses for future conditions were then performed for the 2013 PM peak hour. The following table displays a summary of the levels of service found at the 2013 volumes in addition to displaying the existing condition levels of service previously discussed. The capacity analyses for the future condition can be found in Figure 5 and the Appendix H. Figure 6 provides a summary of these results.

<b>TABLE 14: LEVEL OF SERVICE SUMMARY</b>				
<b><i>INTERSECTION</i></b>	<b><i>MOVEMENT</i></b>	<b><i>PM PEAK HOUR</i></b>		
		<i>Exist 2003</i>	<i>Projected 2013</i>	<i>Change</i>
<b>1. PHILADELPHIA STREET AND THIRD STREET</b>				
PHILADELPHIA STREET	EB LTR	B	B	
	WB LTR	C	C	
THIRD STREET	NB LTR	B	B	
	SB LTR	B	B	
OVERALL		B	B	
<b>2. PHILADELPHIA STREET AND FOURTH STREET</b>				
PHILADELPHIA STREET	EB L	E	F	<i>LOS decrease</i>
	EB TR	C	C	
	EB Overall	C	D	<i>LOS decrease</i>
	WB LT	C	C	
	WB R	B	B	
	WB Overall	C	C	
FOURTH STREET	NB LTR	B	B	
	SB LT	B	B	
	SB R	B	B	
	SB Overall	B	B	
OVERALL		C	C	

**TABLE 14: LEVEL OF SERVICE SUMMARY**

INTERSECTION	MOVEMENT	PM PEAK HOUR		
		Exist 2003	Projected 2013	Change
<b>3. PHILADELPHIA STREET AND FIFTH STREET</b>				
PHILADELPHIA STREET	EB L	A	A	
	EB TR	B	A	<i>LOS improves</i>
	EB Overall	B	A	<i>LOS improves</i>
	WB L	A	A	
	WB TR	A	A	
	WB Overall	A	A	
FIFTH STREET	NB LTR	B	B	
	SB LTR	B	C	<i>LOS decrease</i>
OVERALL		B	B	
<b>4. PHILADELPHIA STREET AND SIXTH STREET</b>				
PHILADELPHIA STREET	EB LTR	A	A	
	WB LTR	C	A	<i>LOS improves</i>
SIXTH STREET	NB L	B	C	<i>LOS decrease</i>
	NB TR	B	C	<i>LOS decrease</i>
	NB Overall	B	C	<i>LOS decrease</i>
	SB L	B	B	
	SB TR	B	C	<i>LOS decrease</i>
	SB Overall	B	C	<i>LOS decrease</i>
OVERALL		B	B	
<b>5. PHILADELPHIA STREET AND SEVENTH STREET</b>				
PHILADELPHIA STREET	EB LTR	B	B	
	WB LTR	C	C	
SEVENTH STREET	NB LT	A	B	<i>LOS decrease</i>
	NB R	A	A	
	NB Overall	A	B	<i>LOS decrease</i>
	SB LT	A	B	<i>LOS decrease</i>
	SB R	A	A	
	SB Overall	A	A	
OVERALL		B	B	
<b>6. PHILADELPHIA STREET AND NINTH STREET/OAKLAND AVE</b>				
PHILADELPHIA STREET	EB L	C	C	
	EB TR	C	C	
	EB Overall	C	C	
	WB L	C	C	
	WB TR	B	B	
	WB Overall	B	C	<i>LOS decrease</i>
OAKLAND AVENUE	NB LTR	B	C	<i>LOS decrease</i>
NINTH STREET	SB LTR	B	B	
OVERALL		C	C	

**TABLE 14: LEVEL OF SERVICE SUMMARY**

<i>INTERSECTION</i>	<i>MOVEMENT</i>	<i>PM PEAK HOUR</i>		
		<i>Exist 2003</i>	<i>Projected 2013</i>	<i>Change</i>
<b>7. PHILADELPHIA STREET AND ELEVENTH STREET</b>				
PHILADELPHIA STREET	EB LTR	C	C	
	WB LTR	B	B	
ELEVENTH STREET	NB LTR	B	B	
	SB LTR	B	B	
OVERALL		B	B	
<b>8. OAKLAND AVENUE AND CHURCH STREET</b>				
CHURCH STREET	EB LTR	B	B	
	WB L	C	C	
	WB R	B	B	
	WB Overall	B	B	
OAKLAND AVENUE	NB LT	A	A	
	SB TR	A	B	<i>LOS decrease</i>
OVERALL		B	B	
<b>9. OAKLAND AVENUE AND TENTH STREET</b>				
TENTH STREET	EB LR	B	B	
OAKLAND AVENUE	NB LT	A	B	<i>LOS decrease</i>
	SB TR	A	B	<i>LOS decrease</i>
OVERALL		A	B	<i>LOS decrease</i>
<b>10. OAKLAND AVENUE AND ELEVENTH STREET</b>				
ELEVENTH STREET	EB LTR	C	C	
	WB LTR	F	E	<i>LOS improves</i>
OAKLAND AVENUE	NB LT	B	B	
	NB R	B	B	
	NB Overall	B	B	
	SB LTR	B	B	
OVERALL		D	D	
<b>11A. OAKLAND AVENUE AND THIRTEENTH STREET</b>				
THIRTEENTH STREET	EB LT	F	F	
	EB R	F	F	
	EB Overall	F	F	
	WB L	C	C	
	WB TR	C	C	
	WB Overall	C	C	
OAKLAND AVENUE	NB L	F	F	
	NB T	D	D	
	NB R	D	C	
	NB Overall	E	E	
	SB L	D	D	
	SB TR	E	E	

<b>TABLE 14: LEVEL OF SERVICE SUMMARY</b>				
<i>INTERSECTION</i>	<i>MOVEMENT</i>	<i>PM PEAK HOUR</i>		
		<i>Exist 2003</i>	<i>Projected 2013</i>	<i>Change</i>
		SB Overall	E	E
OVERALL		E	F	<i>LOS decrease</i>
<b>11B. MAPLE STREET AND THIRTEENTH STREET</b>				
MAPLE STREET	EB TR	A	A	
	WB L	C	C	
	WB T	A	A	
	WB Overall	A	A	
THIRTEENTH STREET	NB LR	F	F	
OVERALL		B	B	
<b>12. WAYNE AVENUE AND CARTER STREET (UNSIGNALIZED)</b>				
CARTER STREET	WB LR	B	F	<i>Significant LOS decrease</i>
WAYNE AVENUE	SB LT	A	A	
<b>13. WAYNE AVENUE AND MAPLE STREET</b>				
MAPLE STREET	EB LT	E	D	<i>LOS improves</i>
	EB R	C	C	
	EB Overall	D	C	<i>LOS improves</i>
	WB LTR	D	C	<i>LOS improves</i>
WAYNE AVENUE	NB L	A	B	
	NB TR	A	B	<i>LOS decrease</i>
	NB Overall	A	B	<i>LOS decrease</i>
	SB L	A	A	
	SB TR	B	C	<i>LOS decrease</i>
	SB Overall	B	C	<i>LOS decrease</i>
OVERALL		C	C	<i>LOS decrease</i>
<b>14. WAYNE AVENUE AND SEVENTH STREET AND LOCUST STREET</b>				
LOCUST STREET	EB LTR	D	D	
	WB LTR	D	D	
SEVENTH STREET	NB LTR	D	D	
	SB LT	D	D	
	SB R	C	C	
	SB Overall	C	C	
WAYNE AVENUE	NE LTR	F	F	
	SW LTR	E	E	
OVERALL		F	E	<i>LOS improves</i>
<b>15. OAKLAND AVENUE AND ROSE STREET</b>				
ROSE STREET	EB L	D	D	
	EB TR	C	C	
	EB Overall	C	D	<i>LOS decrease</i>
	WB L	D	D	

**TABLE 14: LEVEL OF SERVICE SUMMARY**

<i>INTERSECTION</i>	<i>MOVEMENT</i>	<i>PM PEAK HOUR</i>		
		<i>Exist 2003</i>	<i>Projected 2013</i>	<i>Change</i>
	WB T	F	F	
	WB Overall	E	F	<i>LOS decrease</i>
OAKLAND AVENUE	NB L	B	C	
	NB T	D	F	<i>Significant LOS decrease</i>
	NB R	C	C	
	NB Overall	D	F	<i>Significant LOS decrease</i>
	SB L	C	D	
	SB T	C	C	
	SB R	B	C	<i>LOS decrease</i>
	SB Overall	C	C	
OVERALL		D	E	<i>Significant LOS decrease</i>
<b>16. OAKLAND AVENUE AND RUSTIC LODGE ROAD</b>				
RUSTIC LODGE ROAD	WB LR	C	D	<i>LOS decrease</i>
OAKLAND AVENUE	NB TR	C	D	<i>LOS decrease</i>
	SB L	B	C	<i>LOS decrease</i>
	SB T	A	A	
	SB Overall	A	B	<i>LOS decrease</i>
OVERALL		C	C	
<b>17. OAKLAND AVENUE AND INDIAN SPRINGS ROAD</b>				
INDIAN SPRINGS ROAD	EB L	F	F	
	EB T	F	F	
	EB R	A	A	
	EB Overall	D	F	<i>Significant LOS decrease</i>
	WB L	F	F	
	WB T	D	E	<i>Significant LOS decrease</i>
	WB Overall	E	F	<i>Significant LOS decrease</i>
OAKLAND AVENUE	NB L	F	F	
	NB T	C	D	<i>LOS decrease</i>
	NB R	A	A	
	NB Overall	D	D	
	SB L	D	D	
	SB T	E	F	<i>Significant LOS decrease</i>
	SB R	A	A	
SB Overall	D	F	<i>Significant LOS decrease</i>	
OVERALL		D	F	<i>Significant LOS decrease</i>

<b>TABLE 14: LEVEL OF SERVICE SUMMARY</b>				
<i>INTERSECTION</i>	<i>MOVEMENT</i>	<i>PM PEAK HOUR</i>		
		<i>Exist 2003</i>	<i>Projected 2013</i>	<i>Change</i>
<b>18. OAKLAND AVENUE AND TRADER HORN DRIVE</b>				
TRADER HORN DRIVE	EB LT	D	E	<i>Significant LOS decrease</i>
	EB R	D	D	
	EB Overall	D	E	<i>Significant LOS decrease</i>
	WB LTR	D	D	
OAKLAND AVENUE	NB L	D	D	
	NB TR	B	C	<i>LOS decrease</i>
	NB Overall	B	C	<i>LOS decrease</i>
	SB L	E	E	
	SB T	A	A	
	SB R	A	A	
	SB Overall	A	A	
OVERALL		A	B	<i>LOS decrease</i>
<b>19. OAKLAND AVENUE AND WAL-MART DRIVEWAY</b>				
WAL-MART DRIVEWAY	SB L	D	E	<i>Significant LOS decrease</i>
	SB R	C	C	
	EB Overall	C	D	<i>LOS decrease</i>
OAKLAND AVENUE	EB L	E	E	
	EB T	B	B	
	EB Overall	C	C	
	WB T	D	F	<i>Significant LOS decrease</i>
	WB R	A	A	
	WB Overall	C	E	<i>Significant LOS decrease</i>
OVERALL		C	D	<i>LOS decrease</i>
<b>20. OAKLAND AVENUE AND ROUTE 422 WESTBOUND OFF RAMP (UN SIGNALIZED)</b>				
ROUTE 422 WESTBOUND OFF RAMP	WB L	B	B	
OAKLAND AVENUE	NB L	B	B	
<b>21. OAKLAND AVENUE AND ROUTE 422 EASTBOUND OFF RAMP</b>				
ROUTE 422 EASTBOUND OFF RAMP	EB L	D	D	
	EB R	D	D	
	EB Overall	D	D	
OAKLAND AVENUE	NB T	B	B	
	NB R	A	A	
	NB Overall	B	B	
	SB L	A	A	
	SB T	B	B	

**TABLE 14: LEVEL OF SERVICE SUMMARY**

INTERSECTION	MOVEMENT	PM PEAK HOUR		
		Exist 2003	Projected 2013	Change
		SB Overall	B	B
OVERALL		C	C	
<b>22. WAYNE AVENUE AND ROSE STREET</b>				
ROSE STREET	EB LT	B	B	
	EB R	B	B	
	EB Overall	B	B	
	WB LTR	B	B	
WAYNE AVENUE	NB L	A	A	
	NB TR	A	A	
	NB Overall	A	A	
	SB L	B	B	
	SB TR	B	B	
SB Overall	B	B		
OVERALL		B	B	
<b>23. WAYNE AVENUE AND INDIAN SPRINGS ROAD</b>				
INDIAN SPRINGS ROAD	EB LT	C	D	<i>LOS decrease</i>
	EB R	C	C	
	EB Overall	C	D	<i>LOS decrease</i>
	WB LTR	B	C	<i>LOS decrease</i>
WAYNE AVENUE	NB L	D	D	
	NB TR	B	B	
	NB Overall	C	C	
	SB L	C	D	<i>LOS decrease</i>
	SB TR	C	C	
SB Overall	C	D	<i>LOS decrease</i>	
OVERALL		C	C	
<b>24. RUSTIC LODGE ROAD AND INDIAN SPRINGS ROAD</b>				
INDIAN SPRINGS ROAD	EB LTR	A	A	
	WB LTR	A	B	<i>LOS decrease</i>
RUSTIC LODGE ROAD	NB LTR	B	B	
	SB LTR	A	B	<i>LOS decrease</i>
OVERALL		A	B	<i>LOS decrease</i>
<b>BOLD – Unacceptable (LOS E or F)</b> <i>Change: LOS Decrease – drop in one LOS, Significant LOS Decrease – drop in more than one LOS or drop to unacceptable LOS E or F, LOS improves – LOS improvement one or more levels</i>				

## ***Improvement Identification***

The findings of these future capacity analyses are as follows:

- In cases where the level of service increases in the future, the computer model optimized the signal timing. This is recommended to accommodate changes in traffic patterns in the future.

**Philadelphia Street** – In the future condition, the signalized study intersections on Philadelphia Street were found to have no change or only minor (one level) decreases in operation with the following exception:

- **Philadelphia Street and Fourth Street** – The eastbound (Philadelphia Street) left turn movement degrades from unacceptable LOS E to LOS F. *As with the existing condition, mitigation of the projected deficiency can be accomplished by assigning more green time (2 seconds) to the protected/permissive left turn movement.*

Considering the overall operation of **Philadelphia Street**, the following improvements are recommended:

- *Coordination of traffic signals on Philadelphia Street is recommended if two improvements are made. First, the lane continuity should be improved so a vehicle passing through the commercial district does not have to change lanes. Secondly, the traffic signal equipment will need to be upgraded. Consideration should also be made to hardwire each controller to a master controller to provide coordination through a closed-loop signal system. (The intersection of SR 286 and Church Street should also be part of the Philadelphia Street coordination system.)*
- *Overall corridor pavement markings should be examined with special emphasis on lane continuity (i.e. the ability to travel through a corridor without having to change lanes). Developing a three-lane section (one through lane each direction with the third being a left turn lane, two-way left turn lane, or median) with aligned left turn lanes will provide similar delays with improved traffic flow. Additionally, a three-lane section may provide adequate pavement width for wide curb lanes or exclusive lanes for bicycles.*

**Oakland Avenue** – The study intersections on Oakland Avenue between Thirteenth Street and Philadelphia Street were found to have no change or only minor (one level) decreases in operation with the following exception.

- **Oakland Avenue and Thirteenth Street** – As with the existing condition, the intersection of Oakland Avenue and Thirteenth Street operates under unacceptable conditions. *Additional analysis is recommended at this location to determine if retiming the coordinated traffic signal with Maple Street and Thirteenth Street would be acceptable mitigation.*

The study intersections on Oakland Avenue between Rose Street and Route 422 experienced more significant decreases in the future condition, due to the residential and commercial growth projected in this area.

- **Oakland Avenue and Rose Street** – The side street (Rose Street) movements were projected to have significant decreases to unacceptable conditions with future projected traffic. *Mitigation in the form of adjusted signal phasing, signal timing and adequate number and signal phasing of turn lanes should be considered in conjunction with any additional development in the Rose Street northern or southern corridors.*
- **Oakland Avenue and Indian Springs Road** – Significant decreases to unacceptable conditions were projected for multiple movements at this intersection with future projected traffic. *Mitigation of the existing and future deficiencies would require an additional through lane in each direction or alternately the addition of a through lane in each direction on Oakland Avenue combined with splitting the side street phases.*
- **Oakland Avenue and Trader Horn Driveway** – The Trader Horn Driveway movement is projected to decrease to unacceptable levels. *Mitigation in the form of adjusted signal timing to give more time to the Trader Horn Driveway should be considered in conjunction with any additional redevelopment of this parcel.*

Considering the overall operation of **Oakland Avenue**, the following improvements are recommended:

- *Traffic Signal Coordination of Oakland Avenue (SR 286) is recommended in the high volume locations between WalMart Drive and the Indiana Mall Traffic Signal.*
- *As significant impact is projected with future growth, mitigation of any traffic impact should be considered as part of the approval process for future proposed development.*

**Wayne Avenue** – The study intersections on Wayne Avenue were found to have no change or only minor (one level) decreases in operation with the following exceptions.

- **Wayne Avenue and Seventh Street/Locust Street** – As with the existing condition, the intersection of Wayne Avenue and Seventh Street/Locust Street operates under unacceptable conditions. *Additional analysis is recommended at this location to determine if any of the following would be acceptable mitigation measures:*
  - Signal retiming
  - Lane additions
  - Reduction in legs of the intersection via roadway closures or redirections away from the intersection

- **Wayne Avenue and Carter Street** – Operations at this unsignalized intersection are projected to significantly degrade to unacceptable levels (LOS B to F) for the Carter Street movement. This would be typical of unsignalized intersections along Wayne Avenue as traffic in the corridor increases. *Operation of unsignalized intersections should be monitored to determine if/when they meet thresholds for traffic signal warrants.*

Considering the overall operation of **Wayne Avenue**, the following improvements are recommended:

- *Traffic signal coordination is not recommended for Wayne Avenue due to the intersection spacing not supporting coordination.*
- *As significant impact is projected with future growth, especially from the development of the Regional Development Center and adjacent ancillary uses on Wayne Avenue, mitigation of any traffic impact should be considered as part of the approval process for future proposed development. The scope for the study should be coordinated with White Township, Indiana Borough, and PENNDOT to assure all issues are addressed. The study should include pedestrian, transit and vehicular impacts. The study should ensure that a traffic management plan is in place for peak event traffic (ingress and egress).*
- *Incorporation of traffic calming, bicycle facilities and/or boulevard design should be considered in any improvements to Wayne Avenue.*

## CONCLUSIONS

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### *Action Program*

The future transportation and land use analysis resulted in the formation of specific action strategies for the project area. Table 15 provides a summary for the specific *Strategies for Action*, which outline a program for implementation over the next four years. A detailed matrix is provided which outline categories for strategy timeframe (short, medium, long term), responsible party, estimated cost and potential funding sources. In addition to the matrix, a more detailed discussion is included in the recommendations section.

**Table 15 *Strategies for Action* has been included at the end of the text.**

The strategies have been organized by the following topic areas:

- Transportation
- Land Use

The strategies are organized in an easy to identify format in order to facilitate implementation of these strategies. It should be noted that the cost estimates contained herein are wide-ranging and should serve only as a starting point for project evaluation. The costs are limited to study costs where indicated. Detailed costs will need to be developed as a particular project or strategy is selected for implementation.

The potential funding sources identified offer sources for providing all or partial financing for an action or project. These are not exhaustive and other possible sources should continually be sought. It will be important for the responsible party to be up-to-date on potential funding sources.

The strategies matrix was presented to Indiana Borough and White Township Planning Commissions and the Project Advisory Committee at a public meeting held November 20, 2003. The attendees were asked to rank each priority in the strategies for action according to the following letter grades:

- A. Top Priority Project
- B. High Priority Project
- C. Priority Project
- D. "Ho-Hum" Project
- F. Bad Project

The results of the ranking are included in Appendix D, while the individual surveys are included in Appendix I. The average of those rankings is included in the last column of the Strategies for Action matrix.

## ***Recommendations***

The shared vision of the Advisory Committee has several interrelated components. There is a strong interest in managing congestion on Wayne Avenue, particularly in the context of the new Regional Development Center. The group also places a high value on continuing the increased level of intergovernmental and interagency communications and cooperation that this project has facilitated. Other priorities include reducing traffic on Oakland Avenue, and a closer examination of how a more pedestrian oriented IUP Campus could be accomplished. Finally, the committee believed it was important to begin a process to update land use regulations to better achieve sensible transportation through the development process.

### **The Wayne Avenue Corridor/Convocation Center:**

This corridor has periodic congestion at intersections. This is caused by at least two factors. The first is the innate design of the Street system within the Borough, where multiple street intersections are slowing flow. The second issue in the Borough is a preponderance of curb cuts from smaller apartments, particularly between Lowery and Locust Streets. Within White Township the corridor has developed primarily as a mixture of non-retail commercial uses heavy commercial uses, and industrial businesses. A key intersection in the future will be Indian Springs Road, which serves as the major collector, between Wayne and Oakland Avenues.

The major factor in this corridor's future will be the Convocation Center/Homeland Security Center and other University-related uses. It will also be important as White Township's portion of the corridor develops. The ideal within the Borough would be a mixture of office uses, augmented by lighter commercial uses (not major retail, but a mixture of business services, eating places and similar uses). Major concentrations of multi-family residential would also be appropriate here and would not present an innate conflict with the professional offices and light service businesses. Major retail is not likely in the White Township portion due to several factors. The primary factor is the great concentration already along Oakland Avenue. This is coupled with the limitations on depth of development due to the railroad right of way, University ownership of key developable tracts, and the presence of industrial uses. In fact, it is possible that major retail development here would only shift retail development, and dilute the strength of Oakland Avenue as a retail center.

The immediate traffic impact of the proposed Regional Development Center and associated developments should be mitigated by each of these developments as they occur. The use of impact studies should be required to mitigate the impact of future growth on adjacent intersections and roadways. Review fees and mitigation responsibilities should be included in any ordinance that is developed. Specifically for the Regional Development Center Study, the traffic impact study should be coordinated with all affected parties to assure all issues are addressed. The traffic study scope should include a look at pedestrian, transit and vehicular impacts. The development should also ensure that a traffic management plan is in place for peak event traffic. In addition to required traffic mitigation for the Regional Development Center, a desire was expressed to take the opportunity during these studies and associated roadway

improvements to include additional potential improvements to the Wayne Avenue corridor (i.e. boulevard concept, landscaping, bicycle accommodation, access control).

**Short-Term Recommendations for Indiana Borough:**

Consider re-zoning the R-2 properties between Lowery and just below Locust to U-1 or another category that would allow new development more appropriate to the location. The re-zoning could be accompanied by stipulations to reduce curb cuts by shared access provisions or similar requirements. The ideal redevelopment of this area might be mixed office/restaurant/small shops with an intermixture of student housing on upper floors. The re-zoning would allow for small businesses to flourish, due to the Homeland Security Center impact during the day, and residential business at night.

**Short Term Recommendation for White Township:**

Some changes to the SALDO could affect this corridor in a positive way; these are discussed under the land use regulations section.

**Long Term Recommendation for White Township:**

Generally discourage major retail developments from locating within the Oakland Avenue corridor. It would be preferable to encourage such uses in the area between Indian Springs Road and Route 422, if that area does not develop as residential.

**Using Land Use Planning to Foster Better Intergovernmental Cooperation:**

Under the Act 67 and Act 68 amendments to the Pa. Municipalities Planning Code, a completely new standard for multi-municipal comprehensive plans was created. If two or more units of general government adopt the same plan, there are many significant advantages. The level of consideration that state agencies must give the plan is raised. Growth boundaries based on residential density can also be established. Specific plans can be adopted without zoning. Development rights can be transferred without zoning. New standards can be established to review large “developments of regional impact and significance.” Cooperation agreements can be customized to meet each community’s needs, without any participant relinquishing sovereignty. The key is co-adoption. White Township and Indiana Borough should consider this document as an interim amendment to their comprehensive plans. They should offer it also as an amendment to the Indiana County Comprehensive Plan, which would give an official basis for continued cooperation by all parties involved in the process.

**Reducing Traffic On Oakland Avenue:**

The development of the aforementioned Convocation Center/Homeland Security Center will vastly improve the appearance of the Wayne Avenue Corridor. Redevelopment of the older R-2 housing in the Borough of Indiana should only further enhance this corridor. It may be worth consideration to re-orient traffic destined for IUP from Route 422 to take the Wayne Avenue exit. This will not affect all traffic, but

it will appropriately separate destination-oriented traffic within the two corridors. The Borough can further the approach of facilitating greater concentration of development near the IUP campus by re-zoning the R-1 properties along the west side of Oakland Avenue. This would create the potential for new larger apartments that would place more students in the walking zone of campus. Again, the U-1 designation would be the district with the most direct relationship to the area's land use potential. The traffic study associated with the Convocation Center should include analysis and recommendations related to appropriate wayfinding signage.

### **A Pedestrian-Oriented IUP Campus:**

The previously suggested re-zonings in the Borough of Indiana will lead toward a greater number of students within reasonable walking distance of the IUP campus. This immediately ties in with the objectives of IUP to create a more pedestrian oriented campus. More students will be living within the zone that the University will not issue parking permits for on campus parking. This policy may have additional benefits over time. If enrollments remain constant, and more students are living very near campus, other neighborhoods in the Borough may be more attractive for occupation by family households as renters or purchasers of houses. This will make possible the realization of population growth in the Borough over the next twenty years.

If the re-zonings occur, a next step would be to examine the issue of closing Grant Street and possibly a portion of Eleventh Avenue. This decision should be based upon the overall priority goals mentioned previously. Any closure should closely investigate the impact of proposed roadway closures to adjacent intersections, traffic patterns, transit routes, etc.

### **Connecting the Pedestrian-Oriented IUP Campus to the Pedestrian-Oriented Downtown:**

Finally, if the University continues to evolve as a densely developed, pedestrian-oriented community, efforts must be made to ensure reasonable access to shopping opportunities in White Township and especially within downtown Indiana. As previously mentioned, one of the odd features of the Borough's historic design is that both Wayne and Oakland strike into the grid street system at oblique angles. This is a major factor in contributing to congestion within the study area. Ninth, Seventh, and Eighth Avenues have the greatest potential to serve as pedestrian corridors connecting IUP and the downtown, especially the latter two streets. Figure 7 illustrates realistic expectations from a market perspective. If IUP discourages convenient car use on campus, students may be persuaded to walk to downtown. This can be helped if the connecting streets become what planners call "great streets." Great streets are simply those places that make people want to get out of their cars and walk. To quote planner Allan Jacobs, "There is no magic to great streets. We are attracted to the best of them not because we have to go there, but because we want to be there. The best are as joyful as utilitarian." The greatest question is whether people will actually use them. The answer lies in a combination of the great street factor, with hard-headed realism about human nature. Shopping center developers have a great concern about how far their customers are willing to walk. The rule is to place no customer parking space further than 300 feet from the front door. In a downtown setting, which by its density discourages auto use, this distance can be

safely raised to perhaps 600 feet. Developers feel the absolute maximum any human being would be willing to walk is 1,500 feet. The attached map shows how far these distances are from the IUP campus. For the most part, the heart of the downtown is not absolutely beyond reasonable walking distance. However, the distance can be mitigated through the street design and appearance. The street vistas may be relatively wide, if they represent some destination (illusion of movement). Another alternative is to break up vistas to create some focal point at shorter intervals (a common approach with interior malls, where people commonly walk over 600 feet without realizing it).

A great street approach can be accomplished along Seventh and Eighth Avenues in Indiana Borough between the downtown and the IUP campus through landscaping improvements. These should emphasize pedestrian safety. Lighting should emulate on-campus street lighting. Parking lots on Eighth Avenue should include buffer areas, to put more space between cars and people, and limited curb cuts. The key is both pleasant appearance and perceived security of pedestrians.

### **Short- and Long-Term Plans for White Township – Doing Land Use Planning without Zoning:**

As of the completion of this report, White Township is involved in a township-level comprehensive planning process. A comprehensive plan will become the Township's official support for its land use policies, and its community facilities (especially water and sewer) and transportation policies. At this time, it is not likely the Township will utilize a zoning ordinance to implement its comprehensive plan, due to citizen input. It can be expected that the subdivision and land development ordinance will continue to be one of the main vehicles to implement the comprehensive plan.

Both the Township's comprehensive plan and the subdivision and land development ordinance must contain text to ensure that policies are defensible and that they implement long-term goals. The Township has done an exemplary job of maximizing the ability of a subdivision and land development ordinance to ensure high-quality, sensible design. The primary need is for the plan to support the ordinance by explaining policies. This will serve the purposes of both explaining what the ordinance is trying to accomplish in non-technical, non-legal language and serving as an official explanation of any challenged policy.

Some "tweaking" of this generally excellent ordinance will also assist in implementing policy and making the ordinance defensible. Some suggested text is included in Appendix E.

Initial thought should be given to Section 110: These are general purposes. Specific community development goals and objectives should be added, and ideally mirrored in both the comprehensive plan and subdivision and land development ordinance. These goals and objectives should be fairly specific as opposed to mere platitudes. For example, the Township limits cul-de-sac length. A legitimate reason to do this could be expressed in a goal such as:

"To foster greater interconnectivity between individual developments and maintain a cohesive street system without excessive dead-end connections."

Community development objectives may also be site-specific, though geographic specificity is somewhat limited in the vehicle of a subdivision and land development ordinance. However, some communities have considered additional street standards or design criteria for specific roads within the context of their ordinances. An example is attached in Appendix E.

Standards for sidewalks should be based upon specific criteria. Greater interconnectivity could also be fostered by further limitations upon dead end streets. From a traffic management standpoint, the number of homes on a cul-de-sac may need to be lowered. Again, Appendix E contains specific examples.

There may be other long-term options to regulate the land use of future development without a complete zoning ordinance for White Township. These options will require a significant degree of cooperation between Indiana County and White Township but will allow the Township to have the flexibility of exercising a higher standard of control over development in only those places within the Township where there is a significant public interest. The two approaches include either County Zoning or the adoption of a Specific Plan. The County could create and adopt a corridor zoning district along the White Township portions of Oakland Avenue, Wayne Avenue and Sixth Street (with possible inclusion of Indian Springs Road and Rose Street). The vehicle to accomplish this would be an amendment to the current Indiana County zoning ordinance (which presently has jurisdiction only around park lands). Unlike Townships, Counties in Pennsylvania may adopt zoning ordinances, which leave a portion of the municipality unzoned. While this authority is present in every County, it is not commonly utilized except for the protection of County property. Unilateral zoning by the County in this case is not recommended as the first choice. In any case, the establishment of such zoning should involve both units of local government.

A second (and preferred) option to accomplish the same objective would be the adoption of a Specific Plan pursuant to Section 1106 of the Pennsylvania Municipalities Planning Code. A Specific Plan is defined by the Code as, “a detailed plan for the non-residential development of an area covered by a municipal or multi-municipal plan, which when approved or adopted by the participating municipalities through ordinances and agreements supercedes all other applications.” The Specific Plan must be preceded by a multi-municipal comprehensive plan. However, the multi-municipalities could be the County and White Township, through co-adoption of each other’s comprehensive plans or relevant portions thereof. Once a multi-municipal comprehensive plan is adopted, a Specific Plan can be prepared to include:

- Location, classification, and design of new streets
- Standards for density and coverage, and “building intensity”
- Implementing ordinances that include zoning for the area covered

The Specific Plan has some potential as a planning tool for communities such as White Township to only further regulate some areas of the Township without a zoning ordinance covering the entire community. There are two or three areas in the Township where this would be applicable:

- Oakland Avenue – commercial areas
- Wayne Avenue
- The area around the airport, which should be reserved for job-creating business park uses.

While White Township residents are ambivalent or opposed to the idea of zoning, there is some support in the township for agricultural land preservation. A long term means to accomplish this would be through the transfer of development rights. Transfer of development rights is a planning tool that allows a developer to build at a higher density in one place, in return for buying the right to develop in another. The transfer of development rights is tool may be applicable in the local situation because of the desire of developers of student-oriented apartments to maximize density. The Township (or the Township and Borough) could identify a lower base density (perhaps 6-8 units per acre). Developers could pay farmland owners for the right to build 6-8 units per acre, then subsequently build 12-16 units per acre in the growth target area. This saves farmland and encourages development at pedestrian-friendly densities elsewhere. The main drawback is that it is complicated to initially establish, and is not a common western Pennsylvania concept.

#### **Land Use Regulations For Indiana Borough:**

Indiana Borough may wish to look at two other zoning changes that could better integrate land use and transportation. The first would be an examination of the R-1 frontage properties along Philadelphia Street. This corridor has a number of commercial non-conformities. High traffic counts normally discourage residential use and encourage commercial ones. There is a fair commercial concentration in the White Township portion of this corridor. Re-zoning could take the form of an entirely new district, or an overlay. The goal should be to allow single-family dwellings, professional offices and limited commercial uses, but not multiple family dwellings. No current district quite fits this, but a hybrid could easily be created.

Finally, the Borough of Indiana should consider a comprehensive update of its subdivision and land development ordinance. The update should establish clear procedures for land developments as defined by the Pennsylvania Municipalities Planning Code. A good starting point would be the White Township Ordinance.

## ***Conclusion***

The Indiana Multimodal Mobility Study was initiated in March 2003 by the Southwestern Pennsylvania Commission. This report represents the culmination of a ten-month transportation and planning process, which was augmented by local input of eight regional organizations represented on the Project Advisory Committee. These representatives were instrumental in providing insight into local issues relevant to the transportation and planning future of the area. It was the cooperation of these organizations that resulted in the recommendations contained herein.

The study provides the region with a useful tool for future planning and decision making. It contains realistic, action oriented, and implementable recommendations that can be undertaken to achieve its goals. These recommendations are intended to provide guidance to the decision makers in the Indiana area and those organizations that are designated to implement portions of this plan. It is the intent for this study to be used as a tool for funding the recommendations to carry out the vision of the Project Advisory Committee. It is our hope that this study is just the beginning of continued interagency cooperation to maintain the quality of life for residents and visitors to the Indiana area into the future.

The study area encompasses a unique blend of an older, pedestrian-oriented commercial/residential community, a growing auto-oriented suburban community (also with both commercial and residential components) and a large, somewhat self-contained, institutional community. Each unique land use pattern within the three components has transportation effects upon the entire area. In some cases, the traffic from these three components has brought significant congestion. In a few cases, differences in policy have created situations where each interests' legitimate objectives have been unintentionally undermined. However, there is also within this complex situation a genuine desire of each component of the study area to cooperate and enhance the other parties. The process undertaken during this study has initiated an opportunity for further cooperation, and the beginnings of a shared vision. The recommendations are built around this shared initial vision, as expressed in the priorities chosen by the Project Advisory Committee.

*Epilogue: On December 11, 2003, a camera crew from the CBS Early Show came in the Borough of Indiana. The crew's purpose was to film children walking to Eisenhower Elementary School as a part of the local cooperative "walking school bus program." A number of local leaders started the walking school bus program to give kids traffic safety skills, provide exercise, and to reduce vehicular traffic at peak times. Because of the simple fact that Indiana County has many talented local people, a sensible solution to a problem has become the positive focus of national news.*

*This story is important for several reasons. First, it shows how this particular community can create solutions to land use and transportations problems that are affordable, can be implemented, and which bring tangible benefits to other aspects of local life. It also shows how innovative programs are often the result of cooperation between local leaders of various constituencies (in this case county, school district, the state department of transportation, and borough officials). It represents a transportation solution that has been appropriately matched to local land use reality, by the fact that it takes advantage of the*

*walkable densities of housing in the Borough. It fits multimodal transportation options to the demographic needs of a particular group of citizens: in this case, citizens too young to drive.*

*The challenge for the future will be to develop such solutions. This report is only a first step toward that future by offering the beginnings of a shared vision and some initial activities to help the vision become a reality. If the shared vision leads to shared solutions however, the beneficiaries will ultimately be those kids who are now walking to Eisenhower Elementary School and will someday assume their roles as local leaders.*

**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/ POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
<b>TRANSPORTATION</b>				
As a means of assessing and ranking priorities, the County should appoint a Transportation Review Committee (comprised of municipal, county, university, transit and public interest group representatives) to be a continuation of the Advisory Committee for the Indiana Multimodal Mobility Study. This Committee would be charged with analyzing and ranking the recommended improvements in order of importance.	On-going	Indiana County	Cost dependent on project scope	B
Develop a 5-year implementation schedule designed to undertake several of the priority improvements each year.	Short	Indiana County SPC	Cost dependent on project scope	B
Conduct an engineering and design analysis of select transportation improvements. Determine adequate design as well as impact on adjacent roadways and intersections.	Short - Medium	Indiana County SPC	Cost \$25,000 - \$100,000 per study Transportation Improvement Program (TIP)	B

<sup>1</sup> Time Frame: Short Term – 0-2 years, Medium Term – 2-4 years, Long Term – over 4 years



**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
<p>Additional analysis is recommended at the intersections of Oakland Avenue and Thirteenth Street and Maple Street and Thirteenth Street to mitigate the existing unacceptable operating condition considering:</p> <ul style="list-style-type: none"> <li>- Signal retiming</li> <li>- Lane additions</li> <li>- Reduction in legs of the intersection via road closure or redirection away from the intersection</li> <li>- Pedestrian crossings</li> </ul> <p>Investigate possible design as a roundabout</p>	Medium	White Township Indiana Borough	\$20,000 - \$25,000 study TIP or Municipal funds	B
<p>Additional analysis is recommended at the intersection of Wayne Avenue/Seventh Street/Locust Street to determine if any of the following would be acceptable mitigation of the existing unacceptable operating condition:</p> <ul style="list-style-type: none"> <li>- Signal retiming</li> <li>- Lane additions</li> <li>- Reduction in legs of the intersection via road closure or redirection away from the intersection</li> <li>- Pedestrian crossings</li> </ul>	Medium	Indiana Borough	\$20,000 - \$25,000 study TIP or Municipal funds	C

**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/ POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
<p>Coordinate scope for Regional Development Center Study to assure all issues are addressed. Scope should include pedestrian, transit and vehicular impact. Ensure a traffic management plan is in place for peak event traffic. Include evaluation of desired improvements on Wayne Avenue (i.e. boulevard concept, landscaping, bicycle accommodation, access control).</p>	Short	IUP, White Township, Indiana Borough, PENNDOT	None, TIS to be completed by University	B
<p>Develop a plan and feasibility study for promoting pedestrian and bicycle links to connect the University and Downtown area along 7<sup>th</sup> and 8<sup>th</sup> Streets. The plan should provide for sidewalks of adequate width separated from the street by a grass area; create security; provide pedestrian-scale lighting and other street fixtures such as benches and trash receptacles where appropriate.</p>	Medium	Indiana County, LINC (Livable Indiana Neighborhood Connections), IUP, Indiana Borough	\$15,000 - \$30,000 DCNR, DCED Community Revitalization Program (CRP), Municipal Funds, Foundation Grants, Private Donations	B
<p>Consider coordination of traffic signals on Philadelphia Street through a closed loop signal system. The traffic signal equipment needs to be upgraded.</p>	Medium - Long	Indiana Borough, PENNDOT	\$40,000-\$50,000 study of corridor \$1,000-\$120,000 per intersection engineering, design and construction CDBG, TIP, Borough Funds, PENNDOT	C

**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/ POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
Upgrade intersections for appropriate pedestrian provisions. Upgrade pedestrian signal equipment per current PENNDOT standards. Promote designated areas for pedestrian access. Allocate adequate pedestrian time to safely transverse the intersection. Focus on Philadelphia Street as well as any substandard locations on Oakland Avenue and Wayne Avenue.	Medium-Long	Indiana Borough, White Township, PENNDOT	Cost: \$10,000-\$250,000 per intersection CDBG, TIP	B
Examine overall corridor pavement markings and lane configurations on Philadelphia Street. Consider a three-lane section to improve traffic flow and safety (as part of a Philadelphia St. Corridor Study).	Long	Indiana Borough, PENNDOT	Cost dependent upon scope of improvements TIP	B
Consider coordination of traffic signals on Oakland Avenue (SR 286) in the area of Wal-Mart Drive to Indiana Mall.	Medium	White Township, PENNDOT	\$40,000-\$100,000 dependant on type of interconnection CDBG, TIP	C
Investigate impact of proposed roadway closures on IUP campus. Consider impact to adjacent intersections, traffic patterns, transit routes, etc. Roadways for consideration include Grant Street, Eleventh Street.	Short - Medium	IUP, Indiana Borough	\$5,000-\$20,000 IUP or local municipal budget	B

**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/ POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
Develop wayfinding signage in study area. Perform a traffic study to support any change in routing. Consider impact to adjacent intersections, traffic patterns, transit routes, etc.	Short-Medium	Indiana County, PENNDOT	\$50,000-\$150,000 CDBG, TIP, County, Municipal, Private	C
Perform a traffic study to support changes in IUP campus traffic routing relative to redevelopment of Wayne Avenue. Study should include recommendations for appropriate wayfinding signage.	Medium - Long	IUP, Indiana Borough, White Township, PENNDOT	\$25,000-\$50,000 CDBG, TIP	B
Perform comprehensive review of existing one-way roadway network in Indiana Borough. Consider impact on travel patterns throughout the Borough.	Medium	Indiana Borough	\$30,000-\$35,000	B
Implement/update parking survey and plan initially targeting Indiana Borough. Consider undertaking the following steps: identify existing parking, quantify parking need, identify potential sites, revise parking ordinances	Medium	Indiana Borough	\$20,000-\$40,000 (possible reduced cost using IUP interns)	C

**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/ POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
Perform an accident analysis in White Township to identify any high accident potential locations for possible corrective action. Focus on Oakland Avenue, Wayne Avenue and Indian Springs Road corridors.	Medium	White Township	\$10,000-\$15,000	C
Develop and pass ordinance outlining when a traffic impact study is required for proposed development. Use impact study to mitigate the impact of future growth on adjacent intersections and roadways. Include review fees and mitigation in ordinance as developer's responsibility.	Short	Indiana Borough, White Township	Minimal cost to draft ordinance	A
Coordinate with IndiGO Transit Authority for impact to service by road improvements, closures, etc. Consider bus priority in any signal analysis.	On-going	All	N/A	B
<b>LAND USE</b>				
Carefully amend the White Township Subdivision and Land Development Ordinance to create additional traffic design controls in major corridors.	Short	White Township	Minimal – Some model text in appendix	B

**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/ POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
Include additional standards in the White Township Subdivision and Land Development Ordinance to limit cul-de-sacs and promote greater interconnectivity.	Short	White Township	Minimal – Some model text in appendix	C
Include objective standards in the White Township Subdivision Ordinance when sidewalks or footpaths are required.	Short	White Township	Minimal – Some model text in appendix	B
Adopt this study as an interim amendment to the White Township Comprehensive Plan and Indiana Borough Comprehensive Plan.	Short	Indiana Borough Council White Township Supervisors	Minimal (legal notices)	B
Offer major recommendations to Indiana County as an amendment to the County Comprehensive Plan.	Medium	Indiana Borough Council and White Township Indiana County Planning Commission	Virtually none	B
Develop a permanent inter-municipal committee to deal with land use and transportation issues.	Medium	Indiana Borough White Township Indiana County	Minimal – But committee must have a real task (see next item).	B

**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/ POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
Consider crafting an intergovernmental agreement to allow each municipality to review “developments of regional impact and significance” along major transportation corridors.	Medium	Indiana Borough White Township Indiana County	Minimal (copies of agreements from Buck County, Mercer County)	B
Promote pedestrian links between Downtown Indiana and the IUP campus through a “great street” initiative along 7 <sup>th</sup> and 8 <sup>th</sup> Streets.	Short	IUP Downtown Indiana Indiana Borough	Design \$8,000 to \$10,000 Physical Improvements - \$20,000 to \$40,000 IUP classes may be able to assist design at much lower cost.	B
Encourage furthering of IUP efforts to create a pedestrian-oriented campus.	Short	IUP Indiana Borough	Some changes such as street closure may be minimal.	B
Support pedestrian safety enhancements in the Downtown, which still permit auto use and parking.	Short	Downtown Indiana Indiana Borough	SPC and various transportation funding sources - \$5,000 to \$100,000	B
Explore the use of transferable development rights for multiple-family dwellings between White Township and Indiana Borough.	Long	Indiana Borough White Township	Technical assistance by ICOPO Land Use Planning Technical Assistance Program (LUPTAP)	B
Develop and adopt a specific plan per MPC in selected portions of White Township.	Medium	Indiana County White Township	\$15,000 to \$30,000 LUPTAP	B

**TABLE 15 – STRATEGIES FOR ACTION  
INDIANA MULTIMODAL MOBILITY STUDY**

STRATEGIES FOR ACTION	TIME FRAME SHORT, MEDIUM, LONG TERM <sup>1</sup>	RESPONSIBLE PARTY	ESTIMATED COST/POTENTIAL FUNDING SOURCES	COMMITTEE RANKING
Adopt corridor zoning only along Oakland and Wayne Avenues through <u>County</u> zoning. (As an alternative to previous.)	Long	Indiana County White Township	Perhaps \$5,000 to \$7,000 if done by consultant.	C
Amend Indiana Borough zoning districts along Wayne and Oakland Avenues near IUP from R-1/R-2 to U-1 or other higher density uses.	Short	Indiana Borough Planning Commission	Minimal (posting, legal notices, mapping)	C
Do a comprehensive amendment or replacement of Indiana Borough Subdivision and Land Development Ordinance	Medium	Indiana Borough Planning Commission	\$5,000 to \$7,000 LUPTAP CDBG Administrative Funds	B
Examine creation of a new zoning district for Indiana Borough, Philadelphia Street west of Paper Mill Avenue (limited business/professional office).	Medium	Indiana Borough Planning Commission	Minimal – posting/legal notices, work could be done “in house”	C