RESOLUTION NO. 3736

A RESOLUTION TO ADOPT THE TRAFFIC IMPACT STUDY GUIDELINES AND MINIMUM TRANSPORTATION STANDARDS FOR CAPACITY AND SAFETY.

WHEREAS, growth with the City of Albany has substantially increased, causing higher levels of congestion and higher numbers of accidents; and

WHEREAS, staff has prepared a recommended set of Traffic Impact Study Guidelines and Minimum Transportation Standards for capacity and safety to assist in determining the impacts this new growth will have on the transportation system; and

WHEREAS, the Public Works Committee has reviewed and approved these Traffic Impact Study Guidelines and Minimum Transportation Standards for capacity and safety.

NOW, THEREFORE, BE IT RESOLVED that the Albany City Council adopt these Traffic Impact Study Guidelines and Minimum Transportation Standards for capacity and safety.

DATED THIS 8TH DAY OF JANUARY 1997.

Mayor

ATTEST:

City Recorder

3736

TO: Albany City Council

VIA: Steve Bryant, City Manager
Mark A. Yeager, P.E., Public Works Director

FROM: Public Works Committee, Tom Nelson, Chair
by Eric M. Teitelman, P.E., Transportation Services Supervisor

DATE: December 18, 1996, for January 8, 1997, City Council Meeting

SUBJECT: Traffic Impact Study Guidelines and Minimum Transportation Standards

Action Requested:

The Public Works Committee recommends the Council adopt the Traffic Impact Study Guidelines and associated Minimum Transportation Standards.

Discussion:

Growth within the City has substantially increased within the last three to four years. The impacts from this are being realized on our street system both in terms of increased congestion and higher numbers of accidents. The 1995 Community Survey of Crime and Police Services showed that "traffic" was considered to be the single biggest problem in the city. Continued growth is evident by the heavy workload in the development review work units.

To assist in determining the impact this new growth will have on the transportation system, staff wrote a set of guidelines to help developers prepare traffic impact studies for their proposed developments. These studies estimate the volumes of traffic a new development will generate, assign these volumes to the transportation network, and calculate the congestion and safety levels resulting from the growth. It was not considered reasonable or feasible to have every single development prepare a study. Therefore, primarily larger developments generating more than 500 vehicle trips per day were included, approximately equal to a 43-unit or larger single family development. Even still, the level of analysis required is relatively limited unless the project is larger and generates more than 1,000 vehicle trips per day, approximately equal to a 92-unit or larger single family development.

To determine the level of impact a new development will have on the transportation system, it is also important to have adopted minimum transportation standards. Staff has recommended a Level of Service "D" threshold to gauge the level of congestion, and an accident rate threshold of 1 APMV (Accidents per Million Vehicles), to gauge the average level of safety. These standards are based upon nationally recognized criteria that have been developed through years of research.

In July staff sent letters to the development community to notify them of the draft guidelines. Six to eight individuals requested copies of the guidelines, but no formal comments were received. Staff also spoke with Jim Delapoer, City Attorney, to get his thoughts and recommendations on how to implement the guidelines. He viewed them as similar to other documents, such as the Standard Construction Specifications, and suggested the Council make a motion to adopt these guidelines as the "Standard Specifications for a Traffic Impact Study," when such a study is called for by the City Engineer.

Budget Impact:

None to the City. It is anticipated that developers will pay the cost for preparing the studies.

EMT:cmr
Attachments (2)

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TRAFFIC IMPACT STUDY GUIDELINES

1. Purpose of Traffic Impact Study

The purpose of a Traffic Impact Study is to determine:

- The capacity and safety impacts a particular development will have on the Citywide transportation system;
- Whether the development will meet the City's Minimum Transportation Standards for roadway capacity and safety; and
- Mitigating measures necessary to alleviate the capacity and safety impacts so that Minimum Transportation Standards are met.

2. Categories of Traffic Impact Studies

There are two categories of Traffic Impact Studies:

- Level I - Trip Generation and Distribution Study; See Attachment I
- Level II - Traffic Impact Analysis (TIA); See Attachment II

3. Criteria for Warranting a Traffic Impact Study

A Level I - *"Trip Generation and Distribution Study"* is required for all projects that generate at least 50 vehicular trips within the a.m. or p.m. peak traffic periods. The purpose of this study is to assist staff in determining whether a complete TIA is required, and to what level of detail should it be prepared. Information from these studies may also be used in preparation of conditions of approval for the proposed development, specifically where a rough proportionality finding is necessary; commonly referred to as a Nollan/Dolan test. Projects that generate less than 50 peak-hour trips may still be required, at the discretion of staff, to prepare a traffic study if there are specific capacity or safety issues that need to be addressed, or if certain conditions of approval require a rough proportionality finding. A Trip Generation and Distribution Study must be expanded to a full TIA if any of the following criteria are met:

1. If there exists any current traffic problems, such as a high-accident location, poor roadway alignment, or capacity deficiency, that are likely to be compounded as a result of the proposed development.
2. If staff anticipates the current or projected level of service of the roadway system in the vicinity of the development will exceed minimum standards.
3. If staffs anticipate that adjacent neighborhoods or other areas will be adversely impacted by the proposed development.

A Level II - *"Traffic Impact Analysis"* is required for all projects that generate at least 100 vehicular trips within the a.m. or p.m. peak traffic periods.

4. Equivalent Development Units

The following table represents the equivalent number of development units for many common land use types that will generate 50 or 100 p.m. peak-hour vehicular trips. For land use types not listed, refer to the most current version of the Institute of Transportation Engineers' *Trip Generation Manual*. This table defines the thresholds to determine the level of traffic impact analysis required.

ITE Land Use Code	ITE Land Use Description	50 p.m. Peak Hour Trips	100 p.m. Peak Hour Trips
210	Single Family Detached	43 SFU	92 SFU
220	Apartments	79 MFU	159 MFU
230	Condominiums/Townhouses	76 MFU	178 MFU
240	Mobile Home Park	82 SFU	178 SFU
110	Light Industrial Facility	149,000 SQF	184,000 SQF
120	Heavy Industrial Facility	74,000 SQF	147,000 SQF
130	Industrial Park	53,000 SQF	110,000 SQF
140	Manufacturing Facility	67,000 SQF	134,000 SQF
150	Warehouse Facility	68,000 SQF	135,000 SQF
151	Mini-Storage Facility	192,000 SQF	385,000 SQF
710	General Office Building	17,000 SQF	43,000 SQF
720	Medical-Dental Office	13,000 SQF	26,000 SQF
770	Business Park	34,000 SQF	68,000 SQF
820	Shopping Center	2,000 SQF	5,000 SQF
831	Quality Restaurant	6,000 SQF	13,000 SQF
832	High Turnover Sit-Down Restaurant	3,000 SQF	6,000 SQF
834	Fast Food Restaurant with Drive-Through Window	1,000 SQF	3,000 SQF
844	Service Station	3 PUMPS	7 PUMPS
850	Supermarket	5,000 SQF	10,000 SQF
851	Convenience Market (Open 24 Hours)	1,000 SQF	2,000 SQF
853	Convenience Market with Gasoline Pumps	2 PUMPS	5 PUMPS
912	Drive-In Bank	1,000 SQF	2,000 SQF

Source: Trip Generation Manual, 5th Edition. Institute of Transportation Engineers.
Where available, equations were used rather than the average trip generation rates.

5. Waiver of Study

The City Engineer or City Traffic Engineer may waive the requirement for a Traffic Impact Study if it is clearly shown within a previously prepared traffic study, not older than two years, that no capacity or safety issues exist that might be compounded as a result of the proposed development, and thereby, no adverse impacts would be created on the transportation system.

6. Report Certification

All traffic studies shall be prepared by or under the direct supervision of a Professional Civil or Transportation Engineer currently licensed to practice within the State of Oregon, and with special training and experience in transportation engineering and planning. The engineer shall certify the document by providing a signature and seal of approval. Staff may also request that additional credentials, sample reports, and/or references be submitted.

7. Extent of Study Area

The study will need to look at all site access drives, adjacent roadways, and major roadways and intersections in all directions from the site that are impacted by at least 50 or more combined inbound and outbound peak-hour vehicular trips, or less as required by the City. Major roadways and intersections are typically those classified as arterials and collectors. Vehicle trips should not be tracked beyond a 5-mile radius from the development center. The City shall approve the defined influence area prior to commencement with the traffic study.

8. Impacts to Other Jurisdictions

If there are other impacted jurisdictions within the influence area, e.g., ODOT, Linn County, Benton County, Millersburg, or Tangent, and it has been determined that a full TIA is required, the study preparer shall establish a scoping meeting with all necessary agencies to address relevant issues. This will foster improved coordination and reduce the potential for later revisions to the study.

9. Selection of Horizon Years

If a project is a large multi-phased development in which several stages of construction activity are planned, a number of horizon years may be selected that correspond with the opening of each phase. Consequently, transportation improvements can also be staged to coincide with the phases of development. At a minimum, the phased study shall assess traffic conditions at the anticipated time of completion for each phase, and five years beyond completion of the last phase of development. Projects that are not phased shall assess traffic conditions at the anticipated time of completion of the entire project, and five years beyond completion.

10. Background Study Area Data

The study preparer will need to research much of the following information from the City and all other impacted jurisdictions, or obtain it in the field as required. The following list is intended to serve as a guideline since the intensity of development defines the level of information required; see Attachments' I and II.

10.1 Traffic Volumes

- Historic daily and hourly traffic counts to verify traffic growth and peak hour times;
- Recent intersection turning movement counts, and when necessary, recent link volume counts (if not available from City, then must be collected in field);
- Percent of heavy vehicles, including trucks, buses, and recreational vehicles;
- Pedestrian and bicyclist counts when necessary.

10.2 Land Use

- Current zoning, land use, densities, and occupancy in vicinity of site;
- Approved development projects and planned completion dates within study area;
- Other anticipated developments within study area.

10.3 Demographics

- Current and future population and employment trends within study area by traffic zone (as needed for use in site traffic distribution and assignment).

10.4 Transportation System

- Current street system characteristics, including number of lanes, lane and shoulder widths, access control, and traffic control devices;
- A description of roadway geometrics, including horizontal and vertical curvature;
- Roadway functional classifications;
- Posted speed limits and/or free-flow speeds;
- Traffic signal locations, phasing, coordination, and timing;
- Existing congested locations within study area as identified by the City Transportation Plan or previous traffic studies;
- Accident history for three years adjacent to site, and on major roadway links and intersections within study area;
- Local and regional transportation plans;
- Planned future roadway improvements within study area, identifying those with secured funding and those in planning stages;
- Transit stops, service, and usage;
- Pedestrian and bicycle linkages and usage;
- Available curb and off-site parking facilities;
- Any temporary anomalies in the current road system that would influence the data or outcome of the analysis, e.g., major road construction.

10.5 Other Data

- Applicable agency codes and policies, including, but not limited to, development regulations, road standards, and parking space requirements.
- Origin-destination or trip-distribution data as required;
- Any neighborhood sensitivities.

11. Peak Traffic Hours

The a.m. peak-traffic period correlates to a one-hour peak in morning traffic volumes occurring somewhere between 7:00 a.m. and 9:00 a.m., and the p.m. peak-traffic period correlates to a one-hour peak in afternoon traffic volumes, occurring somewhere between 4:00 p.m. and 6:00 p.m. These typical morning and evening peaks are evident for urban commuter routes on weekdays, and are generally somewhat higher in the afternoon than in the morning. Therefore, the weekday afternoon peak period is considered worst case, and is mostly used for determination of adequacy. However, certain conditions, such as reversed flow at intersections from morning to afternoon, may require these areas be analyzed for both a.m. and p.m. peak-hour conditions. The weekday afternoon peak-traffic volumes correlate to approximately 10 percent of the total daily volume. As an example, a development that is shown to generate 50 p.m. peak-hour trips generates approximately 500 daily trips.

12. Non-Site Traffic Forecast

Traffic forecasts generated by the City Transportation Model must be used, if required by staff, to establish

the existing background traffic -- contact the Public Works, Traffic and Transportation Department. Otherwise, existing traffic counts can be used with an average 5% per year growth rate to establish the forecasted background traffic volumes. Growth rates less than this amount shall not be used unless approved by staff.

13. Estimation of Trips Generated

Project trip generation rates shall be estimated using the most current version of the Institute of Transportation Engineers' *Trip Generation Rate Manual*. Where available, equations shall be used rather than average trip generation rates, but only if there are at least 20 data points in the sample and the Coefficient of Determination (R^2) for the sample is greater than 0.75.

14. Estimation of Pass-By Trips

Pass-by trips are those made as intermediate stops on the way from an origin to a primary trip destination. They do not affect the driveway or site access volumes but do affect the amount of traffic added to the adjacent street system. Pass-by trips can be estimated for certain types of commercial developments using the most current version of the ITEs' *Trip Generation Manual*. However, since this methodology is still being developed, the City shall approve pass-by trip estimates for each development on a case-by-case basis, and reserves the option of not allowing pass-by trip reductions if sufficient supporting data is absent.

15. Site Traffic Distribution and Assignment

Manual traffic distribution and assignment based on the gravity model principle can be accomplished using experience, judgement, and knowledge of local conditions. However, projects generating more than 300 peak-hour trips may be required, at the discretion of staff, to use the City transportation model for traffic distribution and assignment.

16. Minimum Transportation Standards

Minimum Transportation Standards define the minimum service standards and level of transportation facility infrastructure needed on existing streets to accommodate the demand generated by new development. New developments not meeting these minimum standards are defined as adversely impacting the existing transportation system, and are not recommended for approval unless mitigated.

16.1 Roadway and Intersection Capacity

All streets and intersections adjacent to the development, and streets and intersections directly utilized by the development for access, regardless of the generated volume of traffic, and streets and intersections off site from the development that will receive 50 or more additional peak-hour vehicular trips with completion of the development, must have a minimum Level of Service "D" as calculated by methods identified within the most current edition of the Transportation Research Board's *Highway Capacity Manual*.

16.2 Roadway and Intersection Safety

All existing streets and intersections adjacent to the development and existing streets, and intersections directly utilized by the development for access, regardless of the generated volume of traffic, and existing streets and intersections off site from the development that will receive 50 or more additional peak hour trips with completion of the development, must not have accident rates exceeding 1.0 accidents per million vehicle miles of travel for street segments, and 1.0 accidents per million entering vehicles for street intersections.

17. Level of Service Analysis

Level of service calculations must be done using the most current version of the Transportation Research Board's *Highway Capacity Manual* or *Highway Capacity Software*. All critical intersections, and possibly segment links, must be evaluated within the influence area. The manual and software contain separate calculations for two-lane and multi-lane, free-flow roadways, signalized arterials, and signalized and unsignalized intersections. At the discretion of staff, signalized intersections may also be evaluated using the most current version of the *Strong Concepts Signalized Intersection Analysis* and Design Software (currently *Signal 94/TEAPAC*), or the most current version of *SIGCAP*.

18. Safety Analysis

Accident records must be researched for all critical segment links and intersections within the influence area. It must be determined whether accident rates, or patterns of accidents, are forming at certain locations where the probability of these occurrences will increase with addition of the project traffic volumes. Examples of recurring accidents include numerous right-angle or rear-end collisions at an intersection, or a high frequency of vehicles leaving the roadway on a substandard horizontal curve. Staff can additionally request that any portion of a roadway be evaluated for probable impacts from the development.

19. Meeting Minimum Level of Service and Safety Standards

Minimum capacity and safety standards define the minimum service standards for which a certain level of transportation facility infrastructure is needed to accommodate the demand generated by new development. New developments that cause these standards to be exceeded are defined as adversely impacting the existing transportation system.

An adverse impact is defined as any burden to the transportation system or the public where an existing inadequate or unsafe condition is worsened, or a new one is created as a result of the new development. The capacity and safety standards contained herein define the thresholds for determining those development activities which will adversely impact the existing transportation system. The traffic study shall identify necessary mitigation to meet a minimum level of service and safety standards, and shall identify funding options for said mitigation.

An adverse impact is considered mitigated if the necessary transportation infrastructure is in place at the time of occupancy of the property, or in the case of a subdivision, at the time of final plat approval. In lieu of constructing the improvements, a financial commitment must be in place to complete the necessary infrastructure, as allowed in the Development Code.

20. On-Site Planning and Parking Principles

An integral part of an overall traffic study relates to basic site planning principles. It is important that off-site roadway improvements be fully integrated with on-site recommendations. Internal design will have a direct bearing on the adequacy of site access points. The driveway traffic volumes need to be accommodated on site, both in terms of queuing space and distributing automobiles to and from parking spaces, pick-up/drop-off points, and drive-through lanes. An integrated system should deliver vehicles from the external roadway system in a manner easily understood by typical drivers, and that maximizes efficiency, accommodates anticipated traffic patterns, and ensures public safety. Pedestrian linkages should conveniently and safely connect transit stops and parking facilities with building entrances. Similar linkages should also be provided between buildings.

20.1 Access Points

The 1994 design policy, adopted by the American Association of State Highway and Transportation Officials (AASHTO), recognizes that access points are intersections, and should be designed with the

same perspective as any other intersection having similar characteristics and volumes. The number of lanes, adequate storage, appropriate signing and striping, and provisions for pedestrian interaction are all elements that should be fully consistent with the City's requirements for off-site roadway intersection design. Also, the criteria behind the signs and markings that drivers are accustomed to on public roadway systems should be reinforced at entrances and exits of private developments.

Joint accesses by two or more properties are desirable, particularly where property frontages are short and driveway volumes are low. Site access points shall be located and designed in accordance with the following guidelines:

- Adequate spacing must be maintained from adjacent street and driveway intersections. Minimum spacing is 300 feet along City-classified arterials. Distances should be sufficient to minimize driveway blockages by queues from the adjacent intersections.
- If the driveway is to be signalized, it should be located to facilitate traffic progression past the site. A signal progression analysis may be warranted in such conditions.
- Adequate driveway capacity must be provided. The number of driveways should be compatible with site access capacity needs and should minimize adverse impacts to adjacent roads. A capacity analysis, available gap check, and/or lane adequacy check must be conducted for each driveway.
- Two-way driveways must intersect adjacent roadways at 75-degree to 90-degree angles.
- The capacity of on-site intersections shall be sufficient to prevent traffic entering the site from backing onto the adjacent street.
- Traffic safety aspects of all proposed site access facilities must be reviewed to ensure adequate sight distance and other applicable factors. City sight distance requirements are as follows:

Posted Speed (mph)	[1] Sight Distance (ft)		
	[2] 2-3 Lane Stop Control	[2] 4-5 Lane Stop Control	[3] 2-5 Lane Signal Control
20	200	225	225
25	250	275	300
30	300	350	375
35	350	400	475
40	400	450	575
45	450	500	700
50	500	550	850
55	550	625	1,000
60	600	675	1,150

Taken in part from AASHTO, *A Policy on Geometric Design of Highways and Streets*, 1990. All units rounded for design.
(1) Measured along the center of the approaching travel lanes, as observed from a point 15-feet back from the edge of traveled way; and measured from an eye height of 3.5 feet to a height of approaching object of 4.25 feet.
(2) Sight distance for a vehicle turning left into a two-lane or four-lane roadway across a vehicle approaching from the left or right.
(3) Sight distance for a vehicle turning right into a two-lane or four-lane roadway, and attain 85% of design speed without being overtaken by a vehicle approaching from the left and reduced to 85% of design speed.

20.2 Vehicular Queuing and Storage

Provisions for appropriate vehicular-exit queuing should be made at all access drives to a development. For small developments, parking areas and access points should be designed so that drivers waiting to exit, align their vehicles perpendicular to the off-site roadway system. For large developments, queuing areas should

be sufficient so that vehicles stored at exits do not block internal circulation, and so that drivers enter a signalized intersection at minimum headways to achieve maximum flow rates.

Analysis must be performed to provide usable estimates of queue lengths that need to be accommodated at signalized intersections. The same procedures must also be used for on-site queuing reservoirs, and for off-site left-turn and right-turn lanes.

20.3 Service and Delivery Vehicles

Service and delivery vehicles require separate criteria for movement to and from the site:

- Access points anticipated to be used by service vehicles shall have turning paths sufficient to allow service vehicles to enter and exit the site without encroaching upon opposing lanes or curbed areas.
- There shall be sufficient separation between external and internal circulation roads so large vehicles can be queued on entry or exit without blocking vehicle progression along any public street.

20.4 Parking

Adequate parking must be provided to meet site-generated demands and be consistent with the most current version of the Institute of Transportation Engineers' *Parking Generation Manual*, and other applicable City Community Development Department policies. Specific dimensions, parking angles, and parking ratio requirements are addressed in the City Development Code, and other publications provided by the Transportation Research Board, Institute of Transportation Engineers, and the Urban Land Institute and National Parking Association (see references).

20.5 Pedestrian, Transit, Bicycle, and Handicapped Facilities

The overall site plans must consider public transportation, pedestrians, and bicyclists. Where bike use is expected, adequate facilities for parking bicycles should be included. Appropriate public transportation facilities, ride pooling areas, and shuttle bus staging areas should be accommodated adjacent to service drive and entrance areas, at key locations along circulation drives, and at major pedestrian focal points along the external roadway system. Pedestrian connections between these facilities and the site buildings must be integrated into the overall design of the project. Proper design of pedestrian facilities can reduce the use of motor vehicles for trips within a development and between nearby developments. Handicapped access must also be provided in accordance with appropriate Federal, State, and City requirements.

21. References

- Institute of Transportation Engineers. *Traffic Access and Impact Studies for Site Development.* Washington, D.C.: ITE, 1991.
- Federal Highway Administration. *Manual on Uniform Traffic Control Devices.* Washington, D.C.: U.S. Department of Transportation, 1988. (Updated periodically. Oregon State has its own adopted supplemental documents that are applicable under State law.)
- Institute of Transportation Engineers. *Guidelines for Driveway Location and Design.* Washington, D.C.: ITE, 1987.
- PRC Voorhees. *Management for Streets and Highways.* Washington, D.C.: U.S. Department of Transportation, 1982, p. 113.
- Stover, Vergil and Frank Koepke. *Transportation and Land Development.* Washington, D.C.: Institute of Transportation Engineers, 1987.
- American Association of State Highway and Transportation Officials. *A Policy on the Geometric Design of Highways and Streets.* Washington, D.C.: AASHTO, 1990.
- Institute of Transportation Engineers. *Transportation and Traffic Engineering Handbook.* Wolfgang Homburger, ed. Washington, D.C.: ITE, 1982, p. 536.
- Transportation Research Board. *Parking Principles.* Special Report 125. Washington, D.C.: TRB, 1971.
- Institute of Transportation Engineers. *Parking Generation.* 2nd ed. Washington, D.C.: ITE, 1987.
- Urban Land Institute and National Parking Association. *Dimensions of Parking.* 2nd ed. Washington, D.C.: ULI, 1983.
- Wilbur Smith & Associates. *Parking Requirements for Shopping Centers.* Washington, D.C.: ULI, 1982.
- Institute of Transportation Engineers. *Guidelines for Planning and Assigning Access Systems for Shopping Centers.* Washington, D.C.: ITE, 1975.

ATTACHMENT I
TRIP GENERATION AND DISTRIBUTION STUDY REPORT FORMAT
LEVEL I ANALYSIS

I. Introduction and Summary

1. Report Certification
2. Purpose of Report and Study Objectives

II. Proposed Development

1. Description
2. Location and Vicinity Map
3. Site Plan
4. Proposed Zoning
5. Proposed Land Use and Intensity
6. Phasing and Timing of Project

III. Existing Conditions

1. Study Area
   a. Limits of Traffic Study
   b. Existing Zoning
   c. Existing Land Uses
2. Site Accessibility
   a. Area Roadway System
   b. Transit Service
   c. Pedestrian and Bicycle Facilities

IV. Projected Traffic

1. Background Traffic
   a. Base-Year Traffic Volumes
   b. Method of Traffic Volume Projection
   c. Projected Traffic Volumes
   d. Traffic Volumes from Other Proposed Developments
   e. Total Background Traffic
2. Site Traffic
   a. Trip Generation
   b. Trip Distribution
3. Total Network Traffic

ATTACHMENT II
TRAFFIC IMPACT ANALYSIS REPORT FORMAT
LEVEL II ANALYSIS

I. Introduction and Summary

1. Report Certification
2. Purpose of Report and Study Objectives
3. Executive Summary
   a. Site Location and Study Area
   b. Proposed Development Description
   c. Findings
   d. Recommendations and Mitigation

II. Proposed Development

1. Description
2. Location and Vicinity Map
3. Site Plan
4. Proposed Zoning
5. Proposed Land Use and Intensity
6. Phasing and Timing of Project

III. Existing Conditions

1. Study Area
   a. Limits of Traffic Study
   b. Existing Zoning
   c. Existing Land Uses
   d. Anticipated Future Development in Area
2. Site Accessibility
   a. Area Roadway System
   b. Traffic Volumes and Conditions
   c. Existing Safety and Capacity Deficiencies
   d. Transit Service
   e. Pedestrian and Bicycle Facilities

IV. Projected Traffic

1. Background Traffic
   a. Base-Year Traffic Volumes
   b. Method of Traffic Volume Projection
   c. Projected Traffic Volumes
   d. Traffic Volumes from Other Proposed Developments
   e. Total Background Traffic
2. Site Traffic
   a. Trip Generation
   b. Trip Distribution
3. Total Network Traffic

V. Traffic Analysis

1. Site Access
2. Capacity and Level Service
   a. Signalized Intersections
   b. Signalized Arterials
   c. Unsignalized Intersections
   d. Unsignalized Roadway Segments
3. Traffic Safety
4. Site Circulation and Parking

Vi. Improvement Analysis

1. Improvements to Accommodate Site Generated and Background Traffic
2. Alternative Improvements
3. Status of Improvements Already Funded, Programmed, or Planned

Vii. Findings

1. Site Accessibility
2. Traffic Impacts
3. Compliance with Level of Service Standards
4. Needed Improvements

Viii. Recommendations and Mitigation

1. Site Access and Circulation Plan
2. Roadway and Intersection Improvements
3. Transportation System Management Actions