

Department of Mobility and Infrastructure



Transportation Impact Review Guidelines

December 2018

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DOMI Guidelines for Development Review

The Department of Mobility and infrastructure (DOMI) is responsible for the safe transportation of people and goods throughout the city of Pittsburgh, and for managing the planning, operations, and improvement of the public rights-of-way (ROW). For the purpose of the Department of City Planning's Zoning Review, DOMI's Planning, Policy and Permits Department evaluates potential impact of land development proposals on the city's comprehensive transportation network.

The level of transportation review is tailored to the scale, use, context, and unique features of the proposed site and runs concurrent with Zoning review (see Section 3.0). For some projects, DOMI simply acts as reviewer for the site plan submitted to Zoning. For other developments, additional material and studies are needed for DOMI to fully evaluate the impact of the proposed project. The information provided in this document is intended to explain when a private property owner is required to conduct a transportation study and the general information parameters that must be included in the study.

1.0 Transportation Review Determination

The Zoning Case Manager will advise the applicant when either the scale of a project or certain site characteristics may require DOMI transportation review. If a Transportation Memorandum or Transportation Impact Study is required, the applicant will need to follow the procedures for scheduling a Transportation Scoping Meeting described in Section 2.0 (Transportation Scoping Meeting).

When setting the study scope DOMI will review impacts in these core areas: roadway capacity and operations; bicycle and pedestrian facilities; safety; transit service; site access and loading; parking; and consistency with adopted transportation policy and plans.

2.0 Scoping Meeting

If a Transportation Memorandum or Transportation Impact Study is required, the applicant shall schedule a Transportation Scoping Meeting through the Department of City Planning (DCP). The applicant should invite the developer and its engineer to the Scoping Meeting.

The applicant shall complete a Transportation Impact Scoping Form, site plan, and trip generation (See **Appendix A**) and submit said documents to the Zoning Case Manager at least one week in advance of the meeting or the meeting may need to be rescheduled.

At the Transportation Scoping Meeting, the applicant will describe the project and DOMI will direct the applicant regarding the criteria required for the study, either a Transportation Memo or TIS (See Section 3.0 for project components). At the scoping meeting, DOMI will also advise the applicant if a preliminary submission is required. Following the meeting, the applicant shall revise the Transportation Impact Scoping Form to include the scope discussed at the meeting. Within 5 business days of the meeting, the applicant shall submit the revised form, scoping meeting minutes, and a sign-in sheet from the meeting to DOMI for approval prior to any study submission or approval.

The applicant is required to notify the Zoning Case Manager if they intend to bring legal counsel to the scoping meeting so that the Department may have appropriate legal representation. If the applicant has

legal counsel in attendance at the meeting and has not provided the Zoning Case Manager advance notification, the meeting may be rescheduled or cancelled.

3.0 Study Determination

The level of study will be dependent on the location, size, and use(s) of the proposed development. **Table 1** identifies three levels of DOMI review for development impact and lists the typical components of each level of study. These components do not constitute a full scope.

Table 1. Transportation Study Components

Section	Content	Site Plan Review	Transportation Memorandum	Transportation Impact Study
Project Description	Description of development plan and phasing	X	X	X
	Site Plan	X	X	X
	Vehicle Site Access Points	X	X	X
	Driveway Sight Distance	X	X	X
	Loading	X	X	X
	Auto and bicycle parking	*	X	X
	Trip Generation with proposed mode splits and justification	*	X	X
Neighborhood Connectivity	Multimodal Analysis (impact to existing pedestrian, bicycle and transit facilities within the area of influence)	*	X	X
	Relationship to adopted neighborhood or master plans, approved development or planned transportation improvements	*	X	X
Roadway Network, Operations, and Analysis	Area of Influence (data collection and analysis)		*	X
	Transportation Demand Management		*	X
	Parking Management		*	X
	Traffic Analysis (capacity, queuing, signal warrant, etc.)		*	X
Recommendations	Vehicle Trip Mitigations		*	X
	Improvements in the ROW	*	*	X
	Memo of Findings		X	X

X Required

* Requested at the discretion of DOMI

3.1 Site Plan Review

When it is determined that only a Site Plan Review is required, transportation elements will be reviewed as part of the land development review process, very often with no additional material required to be submitted by the applicant. A scoping meeting may not be required when no transportation impacts are expected. Transportation elements such as loading, site access and circulation, and sight distance shall be provided as part of DOMI's review process. Parking requirements, surrounding multi-modal considerations, and previously approved neighborhood plans may be considered during the review process.

3.2 Transportation Memorandum

When the development is anticipated to require improvements to the public right-of-way in order to support the proposed development but vehicular network capacity impacts are not expected, a Transportation Memorandum will be required.

The scope of the Transportation Memorandum will be determined at the Transportation Scoping Meeting and will focus on documenting impacts to the surrounding multimodal roadway network. As part of the document, a Transportation Demand Management (TDM) plan or Parking Management Plan (PMP) may be requested. The Transportation Memorandum must receive DOMI approval prior to Site Plan Approval or Planning Commission approval. A Statement of Findings will also be required prior to final approval and identified mitigation strategies shall be implemented prior to the issuance of a Certificate of Occupancy.

A Transportation Memorandum submitted for review shall include the report text, approved Scoping Form, correspondence, and analysis.

3.3 Transportation Impact Study

A Transportation Impact Study (TIS) will be required when the development is anticipated to impact the adjacent roadway network in a manner where network capacity impacts are expected and mitigations such as new traffic signals, roadways, additional lanes, trip removals through transportation demand management, or other improvements are necessary in order to support the proposed development. A Transportation Impact Study will be required if any of the following criteria are satisfied for the proposed development:

- 3,000 or more vehicle trips per day are anticipated to be generated by the development.
- 100 or more vehicle trips entering or exiting the site are anticipated to be generated by the development during any one-hour time period.
- Where DOMI deems the proposed development may impact the roadway network due to planned projects, an existing congested network, or any other reason deemed critical.

The scope of the TIS will be determined at the Transportation Scoping Meeting and will focus on documenting multi-modal impacts to the surrounding roadway network and vehicular capacity impacts within the study area. Depending on the size or complexity of the development or surrounding roadway network, a preliminary submission describing the anticipated trip generation, trip distribution, and projected future traffic volumes with the development may be requested by DOMI prior to a full TIS submission. As part of the TIS, a TDM plan or PMP may be requested. The TIS must receive DOMI approval prior to Site Plan Approval or Planning Commission approval. A Statement of Findings will also be required

prior to final approval and identified mitigation strategies shall be implemented prior to the issuance of a Certificate of Occupancy.

4.0 Transportation Study Components

Transportation Memorandums and Transportation Impact Studies must be performed and sealed by a registered Professional Engineer (PE) with specific training in transportation engineering and who is in good standing with the Commonwealth of Pennsylvania. The TIS Scoping Meeting's date and location shall be included in the report, and the approved TIS Scoping Meeting Checklist, corresponding sign-in sheet, and meeting minutes must be provided in the Appendix. The following sections outline the components that should be considered and investigated and analyzed in the Transportation Memorandums and Transportation Impact Studies. A transportation memo or TIS submitted for review shall follow the format seen in **Appendix B** and include the report text, approved Scoping Form, correspondence, and analysis. This outline is intended to provide consistency in the preparation and review of transportation studies.

4.1 Project Description

All proposed developments must include a project description and include a Study Area Map in the Appendix which depicts the study area boundaries. The project description should also include the following:

- Land use context for existing and proposed conditions
- Existing and proposed zoning
- Existing and proposed right-of-way limits
- Study area boundaries

4.1.2 Development Phasing

Any anticipated phasing of the development shall be identified and described. A description of the land uses and sizes for each phase of the development along with the estimated time frame (year) of each phase shall be explained. Trip generation, analysis and results, and mitigations should be described for each phase of the development.

4.2.0 Site Plan

A site plan must be included with the transportation scoping form and must include the following applicable information:

- Street names adjacent to the development
- Existing and proposed off-street vehicle and bicycle parking areas
- Access path to secure and covered bicycle storage areas
- On/Off-street loading location
- Existing and proposed right-of-way lines
- Site access for all modes of transportation including emergency vehicles and internal site circulation

4.2.1 Vehicular Site Access

All vehicular access points to and from the development, including existing and proposed roadways and driveways, shall be described in the study and clearly shown on a site plan. Photographs documenting

the locations of any proposed driveways or roadways should also be included. Parking area access must comply with Section 914.04F of the Zoning Code, meet [DOMI driveway and curbcut requirements](#), and shall be designed in a way to ensure that entering and exiting vehicles do not disrupt vehicle and pedestrian circulation.

Anticipated and required sight distance for all proposed site driveways shall be documented using the Pennsylvania Department of Transportation's (PennDOT) M-950S Form (Driveway Sight Distance Measurements). The form and any photographs of the sight distance measurements should be included. Any improvements within the public right-of-way in order to achieve adequate sight distance shall be documented.

4.2.2 Loading

The loading requirements as described in the City of Pittsburgh's Zoning Code Chapter 914 (Parking Loading and Access) for the type and size of the land uses shall be documented. Any variances requested to decrease the number of required loading spaces by code should be noted. All proposed off-site and desired on-street loading areas shall be shown on the site plan. Loading activities shall be described, including type of loading activities (refuse, residential move in/move out, retail product deliveries, etc.), type of loading vehicles, vehicle frequency, and time of day for the deliveries. Vehicular turning templates for the largest vehicle anticipated to use the loading areas may be requested to be included in the study.

4.3.0 Multi-Modal Analysis

Adopted/Approved Neighborhood Plans

Any existing neighborhood plans, master plans, approved developments, or approved planned transportation improvements shall be described, and the study should explain any anticipated effects the proposed land development will have on the existing and approved plans.

Existing Facilities

Existing pedestrian, bicycle, and transit access and facilities within the identified study area shall be described in the traffic study. Pedestrian facilities include sidewalks, crosswalks, trails, plazas, breezeways, etc. Bicycle facilities include bike lanes, bike racks, trails, etc. Transit stops within 0.25 miles shall be identified. DOMI may request existing facilities to be shown on a map and included in the study.

Proposed Facilities

Proposed pedestrian, bicycle, and transit access and facilities within the identified study area shall be described in the traffic study. The study should describe on-site and off-site improvements that demonstrate compliance with complete streets guidelines and neighborhood plans, encourage safe and convenient multimodal access, etc. DOMI may request proposed facilities to be shown on a map and included in the study. If the applicant is required to obtain Planning Commission approval, a map should be submitted in order to aid the Planning Commission in making a determination about the project.

4.4.0 Trip Generation

4.4.1 Trip Generation Calculations

Trip generation of a development is the total number of trips originating from and destined to the development via all modes of transportation. The latest edition of the Institute of Transportation Engineers' (ITE) *Trip Generation Handbook* should be used to determine the total trip generation for the development. The appropriate setting/location shall be determined at the Scoping Meeting and used to

determine the trip generation. The data is to be provided in a table which summarizes the trip generation by land use for each peak hour analyzed and the associated calculations shall be included in the Appendix.

The applicant may request to use local trip generation data under the following circumstances:

- ITE land use codes do not accurately describe the development.
- The independent variable falls outside the range of ITE data.
- The ITE land use code has fewer than five data points.
- There is reason to believe that ITE rates do not accurately reflect site-specific trip generation characteristics.

Local trip generation data should be collected at a minimum of three comparable sites and should be subsequently averaged. The proposed local trip generation data must be submitted for review and DOMI approval prior to any transportation analysis being performed.

4.4.1.2 Internal Capture Trips

When a development consists of two or more land uses which provide internal connectivity, internal capture trips are expected to occur within the development and to not enter the external roadway network. ITE internal capture methodology should be used to determine the expected internal capture trips for a development.

4.4.1.3 Vehicle Trip Reductions

If the ITE Trip Generation Manual only provides trip generation rates for a General Urban/Suburban setting for a particular land use, additional vehicle trip reductions may be appropriate based on the development scale and neighborhood context. Mode split methodologies to determine vehicle trip reductions such as Make My Trip Count (Downtown and Oakland only), SNAP data, or local travel surveys may be considered on a case-by-case basis where justification is provided. When providing trip generation based on dense multi-use or general urban/suburban contexts, additional removals may be considered on a case-by-case basis where justification is provided

4.4.1.4 Primary and Pass-By Trips

Vehicle trips should be divided into primary and pass-by trips where applicable. Primary trips are trips which originate from and are destined to the proposed development and where the proposed development is the primary destination. Pass-by trips are trips which were already on the roadway network, but stop at the development on route to a primary destination. Upon leaving the development, pass-by trips continue in the same direction from which they entered the development. Pass-by trips should be determined using ITE pass-by trip methodology.

4.4.1.5 Existing Site Trips

For a site that is being redeveloped, trips associated with the existing use may be used as a trip credit. Traffic counts should be performed to determine the existing site trip generation. If counts are not possible, ITE can be utilized to determine the number of trips for the site. The existing site must have been occupied with trips destined to and originating from the site within the last two years in order to take credit for these trips.

5.0 Parking Requirements

The off-street parking requirements for the development shall be identified based on the criteria outlined in the City of Pittsburgh's Zoning Code Chapter 914 (Parking Loading and Access) for each land use and size. A table shall be included which indicates the following number of required and proposed parking spaces:

- Vehicular parking spaces
 - Total number of vehicular spaces
 - Number of handicapped spaces
- Bicycle parking spaces
 - Total number of bicycle parking spaces including
 - Number of short-term spaces
 - Number of long-term spaces

Any anticipated parking reduction requests should be described and included in the parking table. A parking demand analysis may be requested by DOMI as part of the traffic study.

6.0 Roadway Network Operations and Analysis

6.1.0 Data Collection

6.1.1 Area of Influence

The area of influence for a transportation study shall consist of the following:

- All existing intersections adjacent to the site.
- All existing intersections where 100 or more peak hours trips from the development will traverse through the intersection.
- All existing signalized intersections that currently operate at LOS E or F and 50 or more peak hour trips from the development will traverse through the intersection.
- All existing unsignalized intersections where 50 or more peak hour trips from the development will be added to any individual movement other than the major-street through movement.
- All proposed site access driveways/roadways.
- Any other intersection deemed critical by DOMI staff.

6.1.2 Traffic Counts

Locations where traffic counts are necessary will be identified at the Transportation Scoping Meeting. Traffic counts at existing study intersections shall consist of light and heavy vehicles, pedestrians, and bicycles. Counts shall be performed on a typical weekday (Tuesday, Wednesday, or Thursday) without construction, inclement weather, or nearby large events which could impact the traffic count data. Counts shall be recorded in 15-minute intervals for all modes. Intersection turning movement counts shall be performed during typical morning and evening peak periods, and any other peak periods deemed critical by DOMI staff. Peak periods shall consist of two consecutive hours in the morning (7:00 a.m. – 9:00 a.m.) and evening (4:00 p.m. – 6:00 p.m.). DOMI may request additional hours for counts depending on the proposed land use or site location.

Other traffic data collection may be requested such as Automatic Traffic Recorders (ATRs) in order to collect additional traffic volumes, speeds, or vehicle classification information. Summaries of the traffic counts shall be included in study submission.

Previous traffic counts may be used on a case-by-case basis, but must be less than three years old at the time of the study. The following roadway network changes may require new data to be collected even if the existing data is less than three years old:

- A nearby population/employment center has been constructed or vacated.
- Significant roadway network changes such as the addition of a bicycle lane, a road diet, or a one-way street conversion have occurred near the study area.
- Any other change deemed significant by DOMI which would cause the previous traffic counts to not be representative of current traffic conditions.

Any traffic counts performed or traffic volumes obtained as part of the data collection are to be summarized on figures depicting vehicles, bicycles, and pedestrians traversing through the study intersections and included in the study submission.

6.1.3 Trip Distribution and Assignment

The arrival and departure of trips to and from a site shall be estimated based on existing traffic patterns adjacent to the site, a gravity model, a local travel demand model, or a relevant market study. Significant consideration should be given to performing a gravity model when 7,500 vehicles per day are anticipated or 500 vehicles during any one hour are anticipated to be generated by the proposed development. All justification for the trip distribution shall be explained in the study and should include assumptions and calculations made. Proposed trips shall be assigned through the study area according to the trip distribution. Figures depicting the proposed trip distribution and resulting trips through the study intersections shall be provided in the study submission.

6.2.0 Background Traffic

6.2.1 Traffic Growth Rate

A background traffic growth rate shall be obtained from SPC (Southwestern Pennsylvania Commission) for the neighborhood where the proposed development is located. This growth rate shall be applied to existing traffic volumes to obtain future traffic volumes within the study area.

6.2.2 Approved Developments

At the Transportation Scoping Meeting, DOMI will inform the applicant of any nearby developments whose study areas influence the proposed development's study area. All approved developments and associated right-of-way improvements shall be included in the background analysis and evaluated in the study. DOMI may recommend that planned developments which have been reviewed, but not yet approved, also be included in the study.

6.2.3 Roadway Network Changes

Any recently planned or installed changes to the roadway network within or near the study area shall be described, and the study should explain any anticipated effects the proposed lane development will have on the recent roadway network changes.

6.3.0 Future Analysis (Build and no Build)

6.3.1 Capacity Analysis

When capacity analysis is required, intersection Level-of-Service (LOS) analysis shall be completed for all study intersections. The methodologies in the latest edition of the Transportation Research Boards' *Highway Capacity Manual* (HCM) shall be utilized to determine average delay (seconds) per vehicle, as well as LOS. Micro-simulation software such as Synchro and SimTraffic may be utilized for the capacity analysis. Where appropriate, data for vehicles, pedestrians, bicycles, bus blockages, and parking maneuvers should be incorporated into the capacity analysis. The summary of the LOS and delay analysis shall be provided in table format and the LOS (per lane group, approach, and overall intersection) shall be presented on network figures.

The following conditions shall be analyzed:

- Existing Year Conditions
- Future Year Conditions With Development
- Future Year Conditions Without Development
- Future Year Conditions With Development and Mitigations

The future year shall correspond to the anticipated opening year of the development. If the development is anticipated to be constructed in phases over multiple years, additional future opening years may be requested to be analyzed. When performing future condition capacity analysis for pretimed signals, the existing traffic signal cycle lengths, splits, and offsets shall be used for each condition. When optimizing traffic signal timings, the following minimum times shall be utilized:

- 7 seconds green time for turn phases
- 10 seconds green time for non-turn phases
- 10 seconds of Walk Time
- 15 seconds of Flashing Don't Walk clearance

When calculating Change and Clearance Intervals (CCI), the following parameters shall be utilized:

- Use 3.5 feet per second pedestrian walking speed unless specified
- To calculate the yellow time, the posted speed limit plus 5 mph shall be utilized
- To calculate the red time, the posted speed limit shall be utilized

The TIS shall compare the LOS and delay of the future year conditions without the development to the future year conditions with the development. An impact occurs when the overall intersection LOS degrades and the average delay per vehicle increases more than 10.0 seconds. When an intersection is anticipated to operate at LOS F during the future conditions without development, the 10.0 second allowable increase shall apply. The study shall identify measures necessary to mitigate the impact resulting from the proposed development. DOMI may require the applicant to mitigate critical movements or approaches even if the overall intersection delay does not increase more than 10.0 seconds.

6.3.2 Queuing Analysis

When required, queuing analysis shall be conducted for the study area and 95th percentile queues summarized in table format. When all of the study intersections within the study area operate at LOS D

or better, the queuing from Synchro may be reported. When intersections operate at LOS E or F, SimTraffic shall be used to report the queuing. When using SimTraffic, five 60-minute simulations with a seeding time long enough for vehicles to traverse through the entire study area, but no less than 15 minutes, shall be performed. The average of the 95th percentile queues from the five simulations should be reported. SimTraffic may also be requested by DOMI if queues extend through adjacent intersections, even if the overall intersection LOS is D or better.

Queues of significance must be identified in the study and memo of findings, including queues which extend through the adjacent intersection. In these cases, a figure depicting the queues for both the Without Development and With Development Conditions shall be provided.

6.3.3 Traffic Signal Warrant Analysis

Traffic signal warrants shall be conducted at unsignalized intersections which fail or have an approach to an intersection which fails. The signal warrant analysis shall be performed in accordance to the Manual of Uniform Traffic Control Devices (MUTCD). All applicable signal warrants shall be evaluated and summaries of the analysis included in the Appendix.

6.3.4 Auxiliary Turn Lane Warrants

Where applicable, auxiliary turn lane warrants shall be performed in accordance to the latest edition of PennDOT's Publication 46 (Traffic Engineering Manual), Chapter 11, and summaries of the analysis included in the Appendix.

6.3.5 Crash History and Analysis

The most recent five consecutive years of vehicle, pedestrian, and bicycle crash data for all study intersections and/or roadway segments within the study area should be requested from PennDOT.

The crash data should be summarized in the report and in a table included in the Appendix. Crash analysis must be performed if one or more of the following criteria is satisfied from the crash data:

- At least one fatal crash in any one year
- Four or more crashes which involve injuries
- A total of eight or more crashes (including all types)

For intersections or road segments where the above criteria is satisfied, a crash analysis shall be performed. The analysis should identify crash patterns and collision diagrams may be requested. Expected crash rates should be determined by using the American Association of State and Highway Transportation Officials (AASHTO) Highway Safety Manual (HSM) methodology. PennDOT's HSM Tool A and Tool B may be utilized for the analysis.

When the analysis indicates that a roadway segment or intersection currently experiences a crash rate higher than expected for that type of roadway segment or intersection, improvements to increase safety shall be identified. Potential improvements such as geometric design, lane configuration, traffic signals, or intersection design which would improve safety for all modes of transportation within the study area should be considered. These improvements should then be analyzed to determine the effects by using HSM methodology with Pennsylvania Crash Modification Factors (CMF's) applied for each improvement. Summaries of the analysis shall be included in the Appendix.

7.0 Transportation Demand Management Strategies

As part of the transportation impact review process, DOMI may require a transportation demand management (TDM) plan to be established. The purpose of the TDM plan is to mitigate vehicle impact and reduce signal occupancy vehicle (SOV) trips to and from the proposed site by giving priority to multi-modal improvements and incentives for travelers to shift trips to non-SOV modes. To achieve this, the plan should establish trip reduction and mode share goals appropriate to development use and context. The TDM plan should identify physical improvements to be installed by the development applicant and programming features for when the site is occupied. The plan should identify a means of reporting back to the city on progress. For additional information on the TDM process, see the TDM Guidelines.

8.0 Study Findings

8.1 Mitigations

Where impacts are identified (including all modes of traffic), strategies to mitigate those impacts should be identified and can include physical roadway or traffic control improvements within the study area. Where physical roadway improvements are not possible or are not advisable, mitigation can also include strategies to shift trips to non-single occupancy vehicle (SOV) modes. **Table 2** indicates possible, but not all, mitigation measures and strategies available to support the proposed development and address identified impacts.

Table 2. Examples of Mitigation Strategies

Category	Mitigation Measure
Roadway Improvements	<ul style="list-style-type: none"> • Repaving • Line striping • Realigning roadways • Creating adequate sight distance • Build new roadway connections
Traffic Control Improvements	<ul style="list-style-type: none"> • Install two-way stop control • Install all-way stop control • Install roundabout • Install traffic signal • Traffic signal upgrades (pedestrian countdown heads, signal heads, backplates, ect)
Access Management Improvements	<ul style="list-style-type: none"> • Increase driveway spacing • Relocate access points • Reduce number of driveways • Create shared access points • Improve internal circulation
Operational Improvements	<ul style="list-style-type: none"> • Modify traffic signal timings or phasing • Create/improve signal progression
Land Use Improvement	<ul style="list-style-type: none"> • Reduce project size • Introduce project phases • Revise land use mix • Install way-finding signs

Multi-Modal Improvements	<ul style="list-style-type: none">• Crosswalks• Sidewalks• ADA compliant facilities• Pedestrian refuge islands• Improve transit facilities• TDM Plan
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For developments occurring in phases, the triggers for each mitigation shall be identified and a schedule implementation for the identified mitigation strategies shall be included in the study.

8.2 Recommendations/Commitments

Based on the results of the transportation study, all study recommendations and developer commitments shall be identified and summarized in the report and shown on a map of the study area. If the development will occur in phases, mitigations required for each phase shall be identified.

9.0 Report Presentation

A Transportation Memorandum or a Transportation Impact Study submitted for review shall follow the format seen in **Appendix B**. This outline is intended to provide consistency in the preparation and review of transportation studies.

9.1 Report Submission and Review Criteria

A Transportation Memorandum or a Transportation Impact Study shall be submitted to DOMI in the following manner:

- Two hard copies of report text and all appendices.
 - Delivered to 414 Grant Street, Room 301, Pittsburgh, PA 15219
 - One copy should be submitted to the attention of Angela Martinez.
 - One copy should be submitted to the attention of Amanda Purcell.
- One digital copy of report text, appendices, and analysis. Synchro and SimTraffic files should also be submitted with the report.
 - The digital copy shall be emailed to Angela Martinez, Amanda Purcell, and the Zoning Case Manager.

Upon receipt of a Transportation Memorandum or a Transportation Impact Study, DOMI will make every effort to review and provide comments within 30 days. Any resubmissions of Transportation Studies shall include a response to comments with the Revised Transportation Study. Upon approval of the Transportation Study, DOMI will request the applicant submit a final copy of the Transportation Study and a Statement of Findings. DOMI must be in receipt of these items in order to recommend approval of the Transportation Study to Planning Commission.

9.2 Memo of Findings

To receive approval of the Transportation Memorandum or Transportation Impact Study, a Statement of Findings shall be submitted to DOMI in digital form. This Statement of Findings will assist other DOMI reviews throughout the development process. This is intended to be a brief summary of study and shall include the following:

- Project Location and Description

- Site Plan
- Identified Impacts
- Mitigations/Commitments
 - Mitigation per phase and associated improvements shall be identified
 - Mitigations should be described in the memo and shown on a map

The Statement of Findings does not constitute a full DOMI review. Reviews from other DOMI departments may be required.

Appendix A



**DEPARTMENT OF MOBILITY AND INFRASTRUCTURE
TRANSPORTATION STUDY SCOPING FORM
Revised August 2018**

Submit scoping form and trip generation one week prior to scoping meeting or the meeting may need to be rescheduled.

Final scoping form, sign-in sheet and meeting minutes subject to DOMI approval.

For more information, please see DOMI Transportation Review Impact Guidelines.

NAME OF PROJECT

Developer/Applicant:

Anticipated Development Date:

Anticipated Completion Date:

Date Filed:

Prepared by:

1.0. Project Overview

1.1 Physical Address or Cross Street:

1.2 ZBA Hearing Required

YES

NO

Notes:

1.3 Planning Commission Required

YES

NO

Notes:

1.4 Adopted/Approved Plans

YES

NO

Notes:

1.5 Impact or access to PennDOT Road

YES

NO

Notes:

1.6 TDM Plan Required

Complete Checklist for TDM at end of form

YES

NO

Notes:

1.7 Development Description: For phased developments, description should be provided by phase

Project Component	EXISTING ON-SITE CONDITIONS			FUTURE ON-SITE CONDITIONS			NET DIFFERENCE
	Size (Sq. Ft.)	# of Units	# Parking	Size (Sq. Ft.)	# of Units	# Parking	
List by Type Ex: Office, Residential, Retail, etc.							
TOTAL							

Comments:

2.0 Site Plan: Attach latest site plan

2.1 Vehicular Site Access

Vehicular Site Access

Proposed Conditions	Signalized	Unsignalized	Proposed Access (Full or Restricted)
Project Entry/Exit Points			

The distance calculation to be provided for all access points

2.2 Loading

<p>2.2.1 On-Site Note: Include Vehicle Class: _____</p> <p>2.2.2 On Street Requested</p> <p>2.2.3 Loading Demand Analysis Note: Include timing, type, frequency, and vehicle class: _____</p> <p>2.2.4 Refuse Storage/Pickup</p>	<p style="text-align: center;">Check</p> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div>
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3.0 Multi Modal Analysis: Attach map for existing bike, transit or pedestrian facilities

3.1 Bicycle Routes to or Near Site

<p>Bicycle Routes to or Near Site</p> <p>3.1.1 Bicycle Parking Required</p> <p>3.1.2 Bicycle Parking for vehicular parking reduction</p> <p>3.1.3 Additional Bicyclist End-of trip Facilities Provided (Showers, Changing Rooms, etc.) for TDM</p> <p>Comment:</p> <hr/> <hr/>	<p style="text-align: center;">Check</p> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div>
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3.2 Bicycle Routes to or Near Site (Attach Map)

<p>3.2.1 Identify existing on-street bike routes or trail connections to the site</p> <p>3.2.2 Identify proposed developer created amenities to attract greater bicyclist use</p> <p>3.2.3 Identify planned new or extended bicycle routes near the site</p> <p>3.2.4 Site is located within .25 miles of a Healthy Ride Station</p> <p>3.2.5 Site is located within .25 miles of trail access</p> <p>Comment:</p> <hr/> <hr/>	<p style="text-align: center;">Check</p> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 60px; height: 15px; margin: 0 auto;"></div>
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3.3 Pedestrian Access, Circulation and Safety

Check

- 3.3.1 On-site Points of Entry and Egress
- 3.3.2 New or Replace sidewalk
- 3.3.3 Crosswalk need and warrants Note pedestrian desire lines

Comment:

3.4 Transit Routes to or Near the Site (Attach Map)

Transit Routes to or Near the Site (Attach Map)

Check

- 3.4.1 Identify Peak and Non-Peak Bus Routes At or Near the Site and Frequency
- 3.4.2 Identify Bus Stop and Shelter Locations At or Near the Site
- 3.4.3 Identify developer created amenities to attract greater transit use
- 3.4.4 Site is Located within .25 miles of busway or T station
- 3.4.5 Existing stop adjacent to site

Comment:

4.0 Trip Generation: Submit prior to scoping meeting to ensure thorough review, attach to scoping form

Trip Generation Rate	Project Component	Note
ITE General Urban/Suburban		
ITE Dense Multi-Use Urban		
ITE Rural		
ITE Center City Core		
Independent Survey		
Other (specify)		

4.1 Trip Removals

Check

Trip Reduction Based on Transportation Demand Analysis			
Mode Share traffic Adjustment Factors	Percent	Data Source (Specify)	
Auto	%		
Total non-Auto	%		
Transit	%		
Bicycle	%		
Pedestrian	%		
Other	%		

4.2 Trip Adjustment Factors

Check

Trip Generation Adjustment Factors (check as applicable and explain)			
Base Traffic Adjustment Factors	Percent	Comment	
Internal Trips	TBD %		
Shared Trips	TBD %		
Pass-by Trips	TBD %		

5.0 Roadway Network and Operations Analysis: See section 4.5.0 of Transportation Impact Review Guidelines

5.1 Area of Impact- Required Data Collection

Check

Study Intersections	Unsignalized	Signalized

Attach map showing project site, nearby critical intersections, study intersections, and proposed project entry/exit points.
 Note: Data Collection Must Include: Turning Movement, Transit, Heavy Vehicles, Bicycle, and Pedestrian Counts.

5.2 ATR

5.2.1

Check

Location (Street & Cross Streets)	48-Hour	7-Day	Other

Comment:

5.2.2 Type ATR Count(Please check)

Check

	Check	Comment
Volume Counts		
15-Minute Increments		
1-Hour Increments		
Speed Data		
Vehicle Classification Data		

--

Comment:

5.3 Study Periods

Study Periods (Please check)

	Check	Comment-Note Hours
AM Peak		
PM Peak		
Saturday Peak		
Custom Design Peak (ex: School, Hospital, Event, Religious, etc.)		
Other		

5.4 Trip Distribution and Assignment

Methodology for Trip Assignment (Please check)

	Check
Existing Traffic Data	
Gravity Distribution Model-See TIS Guidelines	
SPC Model	
Market Study	
Other (Specify)	

Comment: _____

5.5 Background Traffic/Future Conditions

5.5.1 Future Year Conditions

Annual Base Traffic Growth per year (Please indicate date, source and provide comments)

Check %

Comment: _____

5.5.2 Trip Removals (Please check and comment)

	Check
Onsite Removals	
Other (Explain)	

Comment: _____

5.5.3 New Projects to be added to base traffic (As specified by DCP)

Note these are developments which the city has approved but have not been built or occupied and would not otherwise be covered under background trips			Check
Project	Year	Data Source	

5.6 Capacity Analysis

Capacity Analysis

- 5.6.1 Existing Conditions
- 5.6.2 Analysis Year Without New Project
- 5.6.3 Analysis Year With New Project
- 5.6.4 Analysis Year With New Project and Mitigation

Check

- 5 year Horizon
- 10 year Master Plan
- 20 Year (federally funded)
- Other Time Frame

Check

Comment:

5.7 Queuing Analysis

Queuing Analysis

Locations

Each Movement of all Study Interactions

Queuing Method

Synchro

HCS

Other

Comment:

Check

--

Check

--

Check

5.8 Traffic Signal Warrant Analysis

5.8.1 Signal Warrant Analysis

- 5.8.1.a All unsignalized study intersections
- 5.8.1.b All signalized study intersections
- 5.8.1.c All Site Driveways
- 5.8.1.d Signal Deficiency Review (Removal, Phasing or Pedestrian or other Upgrades)
- 5.8.1.e Custom (Specify Locations below)

Check

5.8.2 Signal Warrant Analysis

- 5.8.2.a 8-Hour
- 5.8.2.b 4-Hour
- 5.8.2.c Peak Hour
- 5.8.2.d Pedestrian Volume
- 5.8.2.e School Crossing
- 5.8.2.f Coordinated Signal System
- 5.8.2.g Crash Experience
- 5.8.2.h Roadway Network

Check

5.8.3 Auxiliary Turn Lane Warrant

- 5.8.3.a Left Turn Lane Warrant
- 5.8.3.b Right Turn Lane Warrant
- 5.8.3.c Recommended Length

Check

Comment:

5.8 Crash History/ Analysis

5.9.1

Locations

Contact: penndotcrashhelp@pa.gov

Check

--

5.9.2

Collision Diagram

3-Year Data

5-Year Data

Comment:

Check

6.0 Parking

6.1 Existing Conditions

Existing Parking Management Plan (for Institutional Master Plans)
Existing Residential Permit Parking Program (RPPP) Areas (attach map)
Please refer to: <http://www.pittsburghparking.com/rppp>

Check

6.2 Proposed Parking

Proposed Parking (Check Source used)

Methodology

ITE Parking Generation Manual
City of Pittsburgh Zoning Code
Site specific Parking Study or Market Demand
Other Methodology (ex: Urban Land Institute or other, please specify)

Comment:

Check

Parking Conditions Supply and Demand Analysis

Existing Conditions
Phase 1 Year
Phase 2 Year
Phase 3 Year
10-Year Master Plan Year

Comment:

Check

6.3 Parking Reduction

Parking Reduction: Check all that apply

- 6.3.1 Parking Reduction Area
- 6.3.2 Bicycle parking reduction
- 6.3.3 Shared Parking
- 6.3.4 Fee in lieu

Check

6.4 Parking Demand Analysis

Parking Demand Analysis

On and off street inventory(map)

Data Collection(Describe):

Check

6.5 Other Transportation

Other Transportation

Shuttle Bus /Other Private Carrier Service Analysis

- Identify Peak and Non Peak Routes
- Identify Shuttle Stop Locations At or Near the Site
- Estimate number of passengers served
- Time of Day/Frequency of Operations

School Buses

- Identify Peak and Non Peak Routes
- Identify School Bus Stop Locations At or Near the Site
- Estimate number of students served
- Time of Day/Frequency of operations

Comment: _____

Check

Submission Requirements	
2 copies - DOMI	Hard copy of Final Traffic Impact Study Report
	Executive Summary (include in the beginning of report)
	City Correspondence/Comment Response Letters (Include in beginning of Final Report)
	Approved Scoping Form (Include copy in back of Final Report)
2 copies - DOMI	Hard copy of Technical Appendix
1 Copy, emailed	Digital copies of report, appendices, analysis and data in PDF format (no CD's)

Check

Send To:

Name	Department	Mailing Address	Email
Angie Martinez, Senior Planner	City of Pittsburgh Dept. of Mobility and Infrastructure	414 Grant St., 2nd Fl, Pittsburgh, PA 15219	angela.martinez@pittsburghpa.gov
Sergey Brodskiy, Staff Engineer	City of Pittsburgh Dept. of Mobility and Infrastructure	414 Grant St., 3rd Fl, Pittsburgh, PA 15219	sergey.brodskiy@pittsburghpa.gov
Amanda Purcell, Traffic Engineer Zoning Case Manager	City of Pittsburgh Dept. of Mobility and Infrastructure	414 Grant St., 3rd Fl, Pittsburgh, PA 15219	amanda.broadwater@pittsburghpa.gov



Department of Mobility and Infrastructure

TDM Checklist

August 2018

There is not a one size fits all strategy for TDM. To assist in the development of a TDM plan, DOMI has prepared a checklist intended to identify expected (pre-checked) and optional aspects of a TDM plan submitted to the City. Applicants should work with a qualified transportation professional and DOMI to identify a mix of strategies which address transportation impacts, provide adequate multimodal transportation facilities and incentives for non-SOV trips appropriate to the context, scale and use of the proposed development.

No TDM Program is expected to incorporate all of the strategies outlined in the checklist. Rather, the checklist provides a framework of options from which developers can identify appropriate actions for their project. The checklist is not exhaustive and does not constitute a full TDM scope.

Meet with the Transportation Management Association (TMA): Downtown and Oakland only	
Set mode split goals and commitment to survey. Goals should be consistent with relevant adopted neighborhood or master plans.	
Identify responsible party or dedicated staff assigned to administer TDM program and report on progress (this can be specific to the tenant or property manager); for speculative developments, this can be a description of how potential tenant will be made aware of TDM requirements and the property owner or tenant requirement to maintain multi-modal facilities.	
Hire TDM Coordination opt assign staff responsibility to administer a TDM program	
Payback incentives for using non-motorized and carpool commuters	
Provide transit passes or subsidies to employees or residents	
Offer employees or residents free or discount bikeshare membership through the Healthy Ride Corporate Membership Program	
Membership in the 2030 District	
Parking policies that unbundle the cost of parking lease from rent	
Promotion of SPC Commuter Connects programs	
Flexible work hours and/or telecommute program	
Real time transportation displays internal to the development.	
Corporate carpool and/or ride partner programs	
Other:	
Other:	
Other:	
Other:	

Site Plan Strategies	
Adequate sidewalk widths and ADA ramps along all building frontages	
Bicycle parking required by code. A mix of bicycle parking should include convenient short-term parking and secure, covered parking accessible from the ground floor (not through the driveway of a garage) for long-term bicycle parking or storage.	
When impacting a bus stop: work with the City and Port Authority to relocate during construction and restore with amenities	
When providing public easement or public access to privately owned open space: wayfinding	
Upgrades and enhancements for pedestrian safety at site access and intersections	
Consistency with improvements identified in City plans or policy	
For master plan areas with very large existing parking structures (i.e., 500 or more parking spaces), identify how existing parking space can be repurposed as part of reducing SOV trips	
Enhancements to pedestrian facilities that address the last mile problem from transit stops and desired pedestrian paths	
Bicycle storage facilities that exceed Zoning code requirements.	
Bikeshare station on site	
Shower rooms or shower passes for employees who bike to work (office only)	
Unbundled parking	
Shared parking	
Priority carpool parking	
Dedicated car share parking	
Sponsored car share or bikeshare memberships for employees or residents (annual or intro membership)	
Real time arrival transit screens in publicly accessible space	
Transit station enhancements or improvements	
Pedestrian enhancements between proposed buildings and nearby transit stations, such as adding pedestrian scale lighting, emergency call boxes, street trees, and seating	
Sponsored car share or bikeshare memberships for employees or residents (annual or intro membership)	
Real time arrival transit screens in publicly accessible space	
Transit station enhancements or improvements	
Other:	
Other:	
Other:	
Other:	

For more information, please see our DOMI TDM Guidelines
For questions, please email angela.martinez@pittsburghpa.gov

Appendix B

Transportation Impact Study (TIS) Format Guidelines

The TIS shall demonstrate the impact of the trips generated by the proposed development on the transportation network within the study area. The report structure should follow the Table of Contents described below in order to provide consistency in the preparation and review of transportation studies. Tables, figures, plans, calculations, etc. are to be included in the Appendices of the report but should be discussed and referenced within the report body.

Cover Page

A cover page shall be provided which includes the following information:

- Name of proposed development
- Address of proposed development
- Submission date
- Applicant's name and address
- Transportation Consultant's name and address
- Professional Engineer's seal and signature

Table of Contents

A table of contents shall be provided which summarizes the outline of the report text, tables, figures, and appendices included in the transportation report.

Executive Summary

An Executive Summary shall be included in the report and summarize the proposed development and the results of the transportation study. Identified impacts, strategies to mitigate those impacts, and a timeframe of when identified mitigations are required should be included.

1.0 Project Description

- 1.1 Physical Address or Cross Street
- 1.2 ZBA Hearing Required
- 1.3 Planning Commission Required
- 1.4 Adopted/Approved Plans
- 1.5 Impact or access to PennDOT Road
- 1.6 TDM Plan Required
- 1.7 Development Description

2.0 Site Plan

- 2.1 Vehicular Site Access
- 2.2 Loading

3.0 Multi Modal Analysis

- 3.1 Bicycle Routes to or Near Site

3.2 Bicycle Parking Requirement and access

3.3 Pedestrian Access Circulation and safety

3.4 Transit Routes to or near the site

4.0 Trip Generation

4.1 Trip Removals

4.2 Trip Adjustment Factors

5.0 Parking

5.1 Existing Conditions

5.2 Proposed Parking

5.3 Parking Reduction

5.4 Parking Demand Analysis

5.5 On-Street Parking Impacts

6.0 Roadway Network and Operations Analysis

6.1 Area of Impact (Required Data Collection)

6.2 Background Traffic

6.3 Future Analysis (Build and No Build)

6.3.1 Capacity Analysis

6.3.2 Queuing Analysis

6.3.3 Traffic signal Warrant Analysis

6.3.4 Auxiliary Turn Lane Warrants

6.3.5 Crash History and Analysis

Tables

Typically includes trip generation table and parking table

Figures

Typically includes site plan, transportation map, off-site parking map (if applicable),

Appendix

Typically includes approved scoping form, HCM print outs, turn templates, site distance calculations, warrant analysis and other items as applicable.