

Comprehensive Planning in Maryland:

Transportation Element Checklist

About this Checklist: This outline is organized in a standard, traditional manner, but is not intended to dictate the structure or item order that jurisdictions should follow when compiling their own transportation elements. Maryland Code Annotated, Land Use, §3-102 requires a local jurisdiction to include “a transportation element” in the comprehensive plan; and Land Use §3-105 outlines broad requirements for what a transportation element should include. Nevertheless, the Land Use Article does not provide details on how and with what the element may consider those broad requirements. This document is **NOT** a checklist of to do items that must be included, but is rather intended as a guide for what jurisdictions may consider when completing a transportation element. Finally, many of the data sources/sets described and linked below are not available at the municipal or sub-county level. For these data, and as a general best planning practice, municipalities should collaborate with their counties and Metropolitan Planning Organizations (MPOs). State staff members at the [Maryland Department of Planning \(Planning\)](#) and the [State Highway Administration \(SHA\)](#) are also available to assist.

I. Introduction: The introduction to the transportation element should summarize the community’s vision and/or mission for its transportation network, along with community input it received regarding transportation during the stakeholder engagement portion of the comprehensive planning process. The vision should represent, and describe in generalized terms, a desired condition or endpoint for the jurisdiction’s transportation network and its impact on the larger community. A mission explains, again in generalized terms, how the jurisdictions will work toward its vision. Both the vision and the mission are most convincing when connected and responsive to stakeholder input.

- Vision
- Mission(s)
- Stakeholder Input

II. Existing Transportation Facilities by Mode: In addition to soliciting community input and crafting a vision for a community, it is also recommended that a transportation element include an inventory and analysis of the existing transportation network, supportive facilities, issues and problems, and the needs thereof. The checklist outlined below is organized by transportation mode, but jurisdictions may choose to organize their own transportation elements in another manner.

Different items for analysis or inclusion are indicated by a check box . Associated data sources or other tools are included as sub-bullets. Wherever possible, links to data sources, both for GIS users and non-GIS users, are also provided. Numbers in parentheses following a data point or item correspond to a row number on the ***Transportation Element Checklist***

Data Table at the bottom of this document and are highlighted in green font. The table has some additional data sources and can serve a quick reference sheet. Best practices or resource guides are noted in call out boxes where available. Notes and suggestions are indicated by red font. Contacts are also provided for many data sources, but if not available below, feel free to contact Joe Griffiths at joseph.griffiths@maryland.gov with any questions.

Note: *Some sections of this checklist may not apply to every comprehensive plan, as transportation networks vary considerably across Maryland's jurisdictions. Many, if not most, do not include every mode listed below. In addition, the level of analysis of existing transportation facilities may be considered required, or simply suggested, based on the scale or intensity of facility use and the specific needs of each jurisdiction.*

- General (Non-mode specific)**
 - Growth trend analysis including population, households, jobs, redevelopment opportunities, etc.
 - [Key demographics and economic factors](#): demographics, transportation, workforce, etc.
 - Vulnerable Population and Underserved Communities: data and maps for low-income, minority, disabled, and elderly population and communities
 - [EPA's EJSCREEN](#)
 - [Vulnerable Population Index](#) (Baltimore Region)
 - [Equity Emphasis Areas](#) (D.C. Region)
 - General transportation information including congestion, reliability, and traffic volume by state and county
 - Big Picture: [County Transportation Profile Dashboard](#)
 - Marylandmaps.arcgis.com
 - Mode share percentages [American Community Survey (ACS)]
 - [MDP's ACS 5-Year Estimates for Maryland Jurisdictions](#)
 - Transportation affordability (average % of household income spent on transportation)
 - [H + T Index](#): Accounts for the combined costs of housing and transportation based on a location
 - Vehicle miles traveled (VMT) trends (total and per capita) (1)

- County Level VMT: [SHA's Annual Highway Mileage Reports for County Level VMT](#)
- Travel/commuting patterns (Journey to work/Means of transportation by ACS, MPO's travel surveys)
 - [Commuting resources](#) (Maryland State Data Center)
 - Journey-To-Work Commutation tables
 - MDP's ACS County to County Journey-to-Work Commutation Data
 - Inter-State commuting information
 - [Means of Transportation to Work](#): ACS (Search for “means of transportation to work” and allows user to add/remove certain geographies by selecting that action at the top of the page)
 - Drive alone, carpool, public transportation
 - Time leaving home to go to work
 - Travel time to work
 - Vehicle availability
 - Links to Metropolitan Planning Organizations (MPO)
 - [SHA's MPO Webpage](#)
 - [MDOT's PDF Map of MPO's \(2\)](#)
 - [Imap GIS Service of Map of MPO's \(GIS users\)](#):

Note: For travel and commuting patterns and other more detailed information from regional travel surveys and other data sources, contact MPO

- Average commute time (3)
 - [MDP's ACS 5-Year Estimates for Maryland Jurisdictions](#)

Tools and Guides

TSM&O source: (Creating an Effective Program to Advance Transportation System Management and Operations)

[US DOT Federal Highway Administration – Developing and Sustaining a Transportation System Management & Operations](#)

<https://ops.fhwa.dot.gov/publications/fhwahop12003/fhwahop12003.pdf>

<https://www.fhwa.dot.gov/planning/processes/statewide/practices/manual/manual.pdf> (Statewide

Opportunities for Linking Planning and Operations, Reference Manual, May 2010)

https://www.fhwa.dot.gov/goshrp2/Solutions/Reliability/L06_L01_L31_L34/Organizing_for_Reliability_Tools (FHWA implementation initiatives, “Organizing for Reliability,”

Roads and Bridges

Characteristics and Conditions

- Roadway functional classification and right of way information (4)

- [Maryland Highway Performance Monitoring System – Roadway Functional Classification \(GIS Users\)](#): Roadway Functional Classification consists of linear features which specifically show the functional classification of public roadways in the State of Maryland

SHA's Data Services Division (DSD): Collects and reports roadway and travel characteristics of publicly maintained roads to the federal government, State of Maryland, local governments and the public. This data is used by various business units throughout MDOT, as well as many other Federal, State and local government agencies. This data is key to understanding the State classifications (Primary vs Secondary) of public roadways in the State of Maryland. These reports include:

[Up-to-date highway data and mapping](#)
[Highway Performance Monitoring System \(HPMS\)](#)
[Traffic monitoring data](#)
[One Maryland One Centerline \(OMOC\)](#)

- Roadway pavement condition (5)
 - [Pavement Condition NHS 2016 \(GIS Users\)](#)
- Managed lanes/corridors (HOV, High Occupancy Toll lanes, Express Toll lanes, Bus lanes, etc. and their usages) (*State level data sources under development*)
 - [High Occupancy Vehicle \(HOV\)](#)
 - [Express Toll Lanes \(ETL\)](#)
 - [Dedicated Bus Lanes](#)
- Traffic counts (AADT, peak hour volume, % of truck traffic) (6)
 - [Maryland Annual Average Daily Traffic](#): Linear and point features specifically show the amount of annual average daily traffic (AADT), annual average weekday traffic (AAWDT), and AADT based on vehicle class (current year only) for public roadways
 - [Regional Integrated Transportation Information System \(RITIS\)](#): A data platform includes data such as traffic volume and incidents. Local jurisdictions in Maryland have access to the database.

- [Traffic Count Dashboard in the Baltimore Region: Traffic data for area roadways](#), e.g. AADT and average annual daily traffic by vehicle type.
- Congestion (Level of service/ multimodal LOS, bottlenecks, reliability) (7)
 - Jurisdiction needs to contact SHA to acquire LOS information.
 - a) [Regional Planning- Maryland SHA](#)
 - [County Transportation Profile Dashboard](#) - Congestion, Reliability, and traffic volume by state, region, and County and corridor
 - [Travel Time Index \(GIS Users\)](#)
- Delay/travel speeds vs posted speeds
 - [Maryland Roadway Posted Speed Limits – Roadway Posted Speed Limit Signs \(GIS Users\): \(8\)](#) Point features which represent the location of posted speed limit signs along public roadways in the State of Maryland
- Accidents (crash rates and types, high accident roadways/intersections)
 - [Fatality Analysis Reporting System \(FARS\) \(National Highway Traffic Safety Administration\)](#)
 - [FARS Query Tool](#)
 - Make additional requests to gis@mdot.state.md.us

Note: the FARS tables only go down to the county level, but users can map each fatality. Go to the States section, then click Crashes and All Victims, then scroll all the way to the bottom. When a user clicks one of the numbers in the table, the program will show a map of all the fatalities that make up that number. Unfortunately, all fatalities cannot be displayed on one map. Each age group will require its own map

- [RAVEN \(Risk Analysis of Vehicle Environment Network\)](#) Program. A Free web application that displays and analyzes crash and electronic citation data for every Maryland Jurisdiction
 - a) To gain access to RAVEN, please contact:

Sean M. Lynn
GIS Senior Project Manager | Washington College
Email: slynn2@washcoll.edu

- Bridges (inventory including information on functionally obsolete or structurally deficient) (9)
 - National Bridge Inventory (NBI) master data download from FHWA (Includes other structures, such as culverts)
 - a) [NBI Main Page](#)
 - b) [ASCII file data](#)
 - c) Make additional requests to gis@mdot.state.md.us
- Truck freight (major truck routes, miles of truck routes, % of truck traffic) (10)
 - [Freight Story Map](#)
 - [Emergency Truck Parking Locations](#) & [Statewide Truck Parking Study](#)
- Parking
 - State-owned Parking Facility Information (11)
 - a) *GIS Data User*: Parking facility locations including park & ride lots, total spaces, occupancy rate, electric vehicle charging stations, number of ADA accessible spots, bus access. [MDOT SHA Park and Ride Facilities](#), [MTA Bus Parking](#), [MTA Light Rail Parking](#), [MTA Baltimore Metro Subway Parking](#),
 - b) *General Data User*: Parking facility locations including park & ride lots, total spaces, occupancy rate, electric vehicle charging stations, number of ADA accessible spots, bus access. [MDOT SHA Park and Ride Facilities](#), [MTA MARC Parking](#), [WMATA Station Parking](#).
 - c) Contact Information

Request: if data is available, MDOT requests that locals share any local, county, MTA, private park and rides within their jurisdiction to support development of park and ride inventory

- b) *General Data User*: Parking facility locations including park & ride lots, total spaces, occupancy rate, electric vehicle charging stations, number of ADA accessible spots, bus access. [MDOT SHA Park and Ride Facilities](#), [MTA MARC Parking](#), [WMATA Station Parking](#).
- c) Contact Information

Park and Ride Coordinator Maryland State Highway Administration Regional and Intermodal Planning Division	Telephone: 410-545-5675 or toll-free at 1-800-204-4828 Fax: 410-209-5025 Email: parknride@sha.state.md.us
---	---

- Local Parking Facilities
 - a) On-street parking inventory: [Google Street View](#)
 - b) Electric vehicles charging stations

Stations: [Tesla Stations](#), [PlugShare](#), [Alternative Fueling Station Locator](#).

Additional Electric Vehicles Resources

General information: <https://marylanddev.org/charging/>

Nationally Designated EV Corridors:

Corridor maps:

https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/maps/

General information:

https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

- Issues/Deficiencies/Needs (based on “characteristics and conditions”)
 - Current highway improvement projects including [Consolidated Transportation Program](#) (CTP) including [iMap CTP link](#), [County Priority Letters](#), [Highway Needs Inventory](#), Capital Improvement Plan (local) and how they would address traffic issues/needs [\(12\)](#)
 - Roadway safety and operation issues
 - [County Transportation Profile Dashboard](#)
 - Interjurisdictional issues
 - Examples
 - a) 4 lane road meeting 2 lane road at jurisdictional boundary (eg. adjacent land uses around both types vary significantly)
 - b) Municipality wants a bypass, but County does not
 - c) Priority letter disagreements

Suggestion: Refer to MPOs for current Long-Range Transportation Plans and Transportation Improvement Programs

- Parking demand vs. supply
 - State facilities
 - a) Use state facility occupancy rates from above and any other applicable information.
 - Local facilities
 - a) Combine local parking inventory information (if available) with existing local parking regulations/guidelines to complete analysis

Public Transit

Characteristics and Conditions

- Service Types and Routes (route map, buses, light rail, metro rail, commuter rail, human services transportation (defined geofenced service areas if not fixed-route transit)). Below is a list of state, regional, and local transit services that could be included in a comprehensive plan. Not all apply to every community.

Note: For additional ridership information/data of the transit services listed below, Ridership: Contact MTA at:

Philip D. Sullivan

Chief Performance Officer

Maryland Transit Administration

6 St. Paul, 25th floor

Baltimore, MD 21202

443.504.4661

PSullivan@mta.maryland.gov

- Baltimore Area Service:
 - a) Description, Headways/Frequency, Span (Days/Hours)
[Maryland Transit Administration Website – Getting Around](#)
and/or [MD Transportation Resource Information Point](#)
 - b) Ridership
[Ridership data in Maryland Open Data Portal](#)
- Statewide Commuter Bus Service
 - a) Description, Headways/Frequency, Span (Days/Hours)
[Maryland Transit Administration Website – Commuter Bus](#)
and [MD Transportation Resource Information Point](#)

The Maryland Transit Administration's [ridership data](#) is available in tabular form [here](#), via Maryland's [Open Data Portal](#)

It is currently unavailable in another format, but Planning will update this checklist if that changes

- b) Ridership (See the box at the left)
- MARC
 - a) Description, Headways/Frequency, Span (Days/Hours)
 - [Maryland Transit Administration Website - MARC](#) and [MD Transportation Resource Information Point](#)
 - b) Ridership (See the box at the left)
 - [Maryland Department of Planning Transit Station Area Profile Tool](#)
- WMATA (Rail and bus)
 - a) Description, Headways/Frequency, Span(Days/Hours)
 - [WMATA Website – Schedules & Maps](#) and [MD Transportation Resource Information Point](#)
 - b) Ridership ([Maryland's Open Data Portal](#))
 - [Maryland Department of Planning Transit Station Area Profile Tool](#)
- Locally Operated Transit Systems
 - a) Description, Headways/Frequency, Span (Days/Hours)
 - [Local jurisdiction transit systems](#) (See the Maryland map and click individual counties); [MD Transportation Resource Information Point](#); and MTA's information on local systems.
 - b) Ridership: ([Maryland's Open Data Portal](#))

Note: *Span (Days/Hours) means transit operating days and hours. Some local jurisdictions don't have overnight transit but may have increasing number of 24-hour jobs. When considering a location for a large-scale employer, attention should be paid to the site's accessibility to transit. In some locations it is very difficult, if not unfeasible, for Maryland to fund transit projects to remote employers.*

- Percentage of population/jobs within a certain distance of transit route and station, including equity indicators (transit dependent households in certain distance)
 - [Maryland Department of Planning Transit Station Area Profile Tool](#)

Instructions: *Select desired point rail station and links to demographic (population, ridership, jobs, housing sales, etc.) reports are provided*

- Number and type of major activity centers and nodes within a certain distance of transit route/station (e.g., grocery stores, hospitals, schools including university and vocational, childcare, job centers)

Instructions: Identify and map local activity centers and use GIS to calculate number and type. Maryland's Open Data Portal includes certain destinations, e.g., hospitals.

- [Statewide composite locator/geocoder](#)
- Contact MPO
- Transit Oriented Development (TOD) areas
 - Examples
 - a) State designated TOD sites (Areas highlighted in red on [the Transit Station Area Profile Tool](#))
 - b) Local TOD planning areas

Issues/Deficiencies/Needs (*could be own section*)

- Current transit projects and how they would address transit needs
 - CTP and local transportation plans
- Inadequate transit service
 - Local survey of transit demand or demographic analysis of need
- Technology integration (availability of apps, web, SMS, and other ways to access transit information, make payments, etc. – not in replace of but in addition to traditional methods)
 - Transit App Example. For insight to how technology is being incorporated with state transit systems, contact:

*Michael Helta
Chief Innovation Officer
Maryland Transit Administration
6 St. Paul, 25th floor
Baltimore, MD 21202
410-767-3795
mhelta@mta.maryland.gov*

- Interjurisdictional issues
 - Examples
 - a) Continuity of transit services between neighboring jurisdictions and states
 - b) Coordinated long range planning (routes, service development, and land use)

Pedestrian and Bicycle System

Characteristics and Conditions

○ **Pedestrian**

- Walkscores
 - a) [Methodology](#)
 - b) [Research on Walk Score](#)
 - c) [Walkscore Advisory Board](#)
- Sidewalks/crosswalks/trails (locally generated route map)

○ **Bicycle**

- [MDOT Bicycle Spine Network Map/MDP Transit Station Profile](#)
- Bicycle lanes (locally generated route map)
- Bicycle parking (state level data not yet available)

○ Percentage of pedestrian/bicycle travel share (commuting, all travel purpose)

Recommend using - U.S. Census Bureau American Community Survey (ACS) 5-Year Estimates DP-03 "Journey-to-Work" table to be consistent with federally required measure Percent of non-SOV travel

Issues/Deficiencies/Needs

- Current ped/bike projects and how they would address needs
- Missing sidewalks, bikeways and bicycle parking
- Pedestrian/bicycle crossing safety assessment, e.g., crossing times, ped/bike signals, crosswalk markings, etc.

Airports

Characteristics and Conditions

- Description of existing airports
- Issues/Deficiencies/Needs
- [Imap airport layer \(GIS Users\)](#)

Current airport projects and how they would address needs

Incompatible land uses with airports

Local measures to preserve airport operations, such as zoning overlays and notification systems

Port and Intermodal

Characteristics and Conditions (13)

- Description of the existing facilities, usage, etc.
- Issues/Deficiencies/Needs

- Port layer in freight story map (see link below)
- Current airport projects and how they would address needs
- Compatible land uses
- Demand and supply
- Freight and Interstate/city Passenger Rail
 - [Maryland's Freight Story Map](#)
 - Characteristics and Conditions
 - Routes (map, description of the system, e.g., owners, usage, etc.)
 - Issues/Deficiencies/Needs
 - Current projects and how they would address issues/needs

Emerging transportation modes and technologies (private operators/vehicles)

- Characteristics and Conditions: Consider including a paragraph or two about emerging and shared mobility operations in your jurisdiction. For greater detail, consider including the following
 - Ride-hailing Services
 - Number of licensed For-hire carriers in area (the data may not be available or allowed to report on)
 - Number of licensed for-hire drivers in area (the data may not be available or allowed to report on)
 - Share of total licensed private vehicles licensed as TNC/for-hire drivers (the data may not be available or may be protected)
 - License plates registered, drivers' licenses issued, etc. (the data may not be available or allowed to report on)
 - Electric Vehicles (EV)
 - Electrical vehicle charging stations or other infrastructure (map, locations) (GIS Users)
 - [Maryland's ZEEVIC](#)
 - [Maryland EV website](#)
 - Connected and Autonomous Vehicles (CAV)
 - [CAV Initiatives in Maryland](#)
 - [MDOT SHA CAV Initiatives](#)
 - Issues/Deficiencies/Needs

III. Goals/Objectives/Policies/Recommendations: This section of the element outlines the jurisdiction's plan for achieving the vision established earlier in the transportation element and should respond to and be informed by the analysis of the existing transportation network completed in Section II. The checklist questions, descriptions, and examples of statements below are a guide to how goals, objectives, policies, and recommendations could be formulated, but communities should feel free to modify as appropriate for the document they are preparing. However, end results, measurable outcomes, and decision points guiding how they will be achieved are essential items to include in this section of any comprehensive plan element.

This section is organized by element/plan consistency and multimodal categories because solutions and strategies for transportation planning are interrelated with other elements and plans and often take multimodal approaches. Often, similar statements of intent and plan considerations are responses to different questions. This demonstrates the close connection of transportation planning to land use, resource conservation, regional collaboration, economic development, and many other areas of focus.

Definitions and Examples

Goals: Themes guiding the jurisdiction into the future

Example: Enhance the quality of the air, water, and land where feasible and practical

Objectives: The means for achieving these themes

Example: Establish a network of streams and other natural areas which connect and protect sensitive areas and other environmental features determined to be of importance

Principles/Policies: Standards/Rules for decision-making

Example: Development should avoid impacts on sensitive areas which are located outside of Plan-designated growth areas

Recommendations: Specific implementation actions and/or processes to address how goals, objectives, and policies can be achieved. Usually proactive in nature. Example: Implement travel demand management programs and projects

Consistency with other elements, plans, and policies

Note: The most effective goals, objectives, policies, and recommendations support and reinforce other elements of the comprehensive plan (internal consistency) and are consistent with or address other local, regional, and state transportation and planning plans and policies (external consistency)

Internal Consistency

- How do transportation goals/objectives/polices/recommendations address connection between land use and transportation?
 - Integrate land use and transportation planning to support orderly growth/development and resource preservation
 - Prioritize transportation improvements in existing communities and targeted growth or revitalization areas
 - Promote transit-oriented development near transit stations and hubs
 - Improve walkability and bicycle-friendliness in compact and/or mixed-use areas, and TOD
 - Discourage uncontrolled-access strip development along a major highway corridor
 - Conduct highway corridor planning to address orderly land uses and transportation access management and control

- How do transportation goals/objectives/polices/recommendations support resource protection/conservation elements (including environmental, historical/cultural, agricultural/land, and water resources)?
 - Limit major highway capacity expansion in rural/agricultural areas, and focus any improvements in such areas to considerations of safety only
 - Ensure transportation projects do not compromise resource protection and conservation by minimizing/avoiding direct and indirect impacts on resources
 - Implement “context sensitive solutions”, which account for the communities and lands through which transportation facilities and networks pass
 - Promote alternative transportation to help reduce greenhouse gas emissions and support local and state Climate Change goals

- How do transportation goals/objectives/polices/recommendations support economic development, housing, and community facilities?
 - Improve transportation access to major employment centers
 - Prioritize transportation improvements to support major economic development activities.
 - Reducing congestion bottlenecks to improve access to major economic growth areas
 - Transform underutilized suburban employment centers to transit friendly and walkable activity centers
 - Provide and enhance transit services to employment centers for low-income and transit-dependent workers
 - Encourage affordable and workforce housing in TOD and major transit corridors
 - Locate senior and aged restrict housing near activity and community service centers including transit hubs
 - Coordinate transit services with community facility/housing/senior centers and hospitals
 - Implement safe route to schools including pedestrian and bicycle connections
 - Improve pedestrian and bicycle access to community activity facilities and centers

External Consistency

- Do transportation goals/objectives/polices/recommendations coordinate with the plans and programs of the Maryland Department of Transportation, such as the latest [Maryland Transportation Plan](#), [Maryland Bicycle and Pedestrian Master Plan](#), and [Maryland Consolidated Transportation Program \(CTP\)](#)?
 - Ensure consistency with relevant state transportation goals and objectives, such as providing better transportation choices and connections
 - Coordinate/support key initiatives in state's bicycle/pedestrian plan
 - Clarify local transportation project priorities as related to the CTP
- Do transportation goals/objectives/polices/recommendations coordinate with the plans and programs of adjacent jurisdictions, [the metropolitan planning organization \(MPO\)](#) (if applicable), [regional planning councils](#) (if applicable), [regional transit agencies](#) (if applicable), such as the regional long-range transportation plans and transportation improvement programs (TIP), [MTA's](#)

locally operated transit programs, WMATA's Strategic Plans and Capital and Service Plans?

- Address and coordinate transportation and land use issues affecting inter-jurisdictional transportation needs
- Ensure consistency with relevant regional transportation goals and objectives
- Coordinate local transportation projects with MPO's TIPs
- Plan Bus Rapid Transit along a highway corridor to be consistent or support the bus network improvement initiative of a transit agency
- Coordinate TOD efforts and gain support from transit agencies

How do transportation goals/objectives/polices/recommendations advance Maryland's Twelve Planning Visions and address Maryland's Smart Growth/Priority Funding Area (PFA) Law (Md. Code Ann., state Fin. & Proc., 5-7B-01 – 10) and A Better Maryland?

- Be consistent with the Planning Visions, such as providing a multimodal transportation system to facilitate the safe, affordable, and efficient movement of people, goods, and services within and among population and business centers (Vision 6 – Transportation)
- Plan state highway capacity projects in/connecting PFAs and supporting development in PFAs
- Coordinate/support relevant topics and strategies in A Better Maryland and access the state plan's resources in the support of local transportation planning efforts

Multimodal consideration

Does the element address all applicable modes of transportation and include relevant maps, data, and analyses for improvement recommendations?

- Develop goals/objectives/policies/recommendations that cover all applicable modes of transportation; accommodating and facilitating the movement of people, goods, and services
- Include maps, and analyses to depict the existing conditions (in Section II) of transportation modes and the proposed improvement recommendations (in Section III), including but not limited to roadway classification/improvement maps, transit services/freight rail lines maps, pedestrian/bicycle maps, airport/port facilities, sea-level rise impacting maps, etc.
- Use/reference to relevant maps in other elements, such as land use, activity center, and community facility maps to help frame and connect improvement recommendations

- Do transportation goals/objectives/polices/recommendations address the deficiencies and issues of multimodal facilities identified in Section II?
 - Prioritize transportation programs and projects to address major transportation deficiencies, especially safety issues
 - Work with regional and state transportation agencies to address major highway or transit gaps/deficiencies
 - Study feasibility of expanded transit service, including bus and rail, to those area identified as underserved in Section II
 - Improve vehicular and transit service to activity centers
- Do transportation goals/objectives/polices/recommendations address long term multimodal transportation needs for the period that the comprehensive plan covers?
 - Develop multimodal transportation goals/objectives/recommendations to meet the long-term transportation needs of the jurisdiction
 - Implement interim transportation strategies to both enhance connectivity and accessibility in the short-term while also building momentum for more extensive long-term enhancements
- How will transportation goals/objectives/polices/recommendations support a multi-modal system and inter-modal linkages?
 - Provide multimodal transportation (roads, transit, walking/biking, ports, airports, etc.) for all users including freight; and pay attention to the needs of elderly, young, disabled, and low-income populations
 - Prioritize system preservation improvements to avoid costly repair in a long run
 - Provide transportation choice to meet various needs
 - Promote alternative transportation, e.g., transit, walking and biking, and other transportation demand management (TDM) strategies, such as car-/van-pool programs, telework and flexible work schedules, building park & ride lots along major highway corridors to support transportation, socioeconomic, and environmental/climate change goals
 - Optimize and preserve the existing multimodal system by implementing transportation system management and operations (TSMO) strategies, which the Federal Highway Administration defines as “a set of strategies that focus on operational improvements that can maintain and even restore the performance of the existing

transportation system before extra capacity is needed". See link on Page 3 above for more details on TSMO.

- Support the creation of [Complete Streets](#) in the development review process
- Improve inter-modal linkages to address the first and last mile connections of transit services
- Improve inter-modal connections for freight
- Reduce minimum parking standards to encourage non-motorized transportation in compact, mixed-use, and transit available areas.
- Develop/update adequate public facilities ordinance (APFO) to consider multimodal requirements and provide flexibility/lower standard requirements for compact/mixed-use/TOD areas and areas with good transit and pedestrian and bicycle access
- Develop a jurisdiction-wide transportation functional plan to provide detailed analysis and strategies/recommendations for all applicable transportation modes

How do transportation goals/objectives/polices/recommendations address multimodal access to support existing and proposed major activity centers and developments, including residential, commercial, employment, etc.?

- Assess multimodal transportation demands and strategize multimodal recommendations to support major activity centers while minimizing impacts on environmental and resource areas
- Consider comprehensive transportation facility adequacy review to ensure multimodal improvements needed for major proposed/pipeline developments

How do transportation goals/objectives/polices/recommendations address roadway/bridge improvement needs?

- Identify bridge maintenance and improvement projects and prioritize safety improvements
- Accommodate pedestrian and bicycle access in bridge projects
- Address major regional congestion bottlenecks in coordination with state and regional transportation agencies
- Address existing and projected highway congestion through a holistic approach, such as multimodal improvements, access management, land use and transportation integration, improving a network of roadways, etc.
- Prioritize roadway safety improvements based on analysis presented in Section II above

- Preserve right-of-way for existing and proposed roadway improvements
- Optimize roadway efficiency through TSMO, such as Smart Signals, geometric improvements, intersection improvements, and pavement update
- Minimize land use and environmental resource impacts of major highway improvements
- Identify missing roadway links to build roadway network to support efficient local and through traffic movement
- Provide more direct and shorter vehicle and pedestrian access by improving roadway network connectivity and reducing or eliminating dead end streets or cul-de-sacs in and between existing communities and planned growth areas

How do transportation goals/objectives/polices/recommendations address public transit including interstate/city passenger transit (if applicable)?

- Improve transit as a viable transportation choice
- Address existing transit facility/service deficiencies (identified in Section II) in coordination with state and regional transit agencies
- Identify needed new transit services including major transit lines (if applicable) based on major travel origins and destinations
- If applicable, address interstate/city rail or other fixed guideway transit needs in coordination with transit agencies
- Integrate land use and transit planning to boost ridership and support community development, such as enhancing bus connections in planned TOD areas, planning for TOD at transit station/hub sites, and improving walkability in transit station/stop/hub areas
- Implement transit signal priority along major transit corridors
- Improve first and last mile connections of transit services
- Address transit needs as an economic development strategy
- Address mid-day, weekend, late-night transit needs for service workers
- Support or establish a [transportation management association](#) to assist major employment areas' transportation needs
- Enhance general transit and human service transportation to meet the needs of transportation disadvantaged population including seniors, disabled persons, and low-income persons
- Address funding to sustain and support local transit services

How do transportation goals/objectives/polices/recommendations address pedestrian and bicycle facility needs?

- Increase non-auto modes of transportation by making them convenient, safe, appealing, and viable transportation modes
- Establish land use and other objectives, policies, and strategies that will promote bicycling and walking
- Improve pedestrian and bicycle connections to activity nodes/centers
- Improve regional trail connections in coordination with MPO/MDOT
- Accommodate pedestrian and bicycle access in roadway improvements including intersection/interchange upgrades
- Address pedestrian and bicycle needs when reviewing development proposals
- Require/encourage developers to fund pedestrian and bicycle facilities
- Provide bike parking facilities
- Explore bikeshare program
- Develop a pedestrian and bicycle plan

How do transportation goals/objectives/polices/recommendations address airport, ports, and freight? (land use, location, impacts, noise, centers)

- Identify/address needed airport/port facility improvements
- Coordinate roadway, rail and transit service improvements with existing and future needs of ports or airports
- Support economic development through strategic investments in freight infrastructure and networks while minimizing impacts on citizens and neighbors
- Coordinate land use in the airport area to avoid conflict uses
- Coordinate land use and economic development that relate to and affect the port and its operation
- Coordinate freight facility improvements including highways, ports, airports, rails, intermodal connections, and warehouse facilities, in coordination with private freight companies, the Maryland Port Administration, the Maryland Aviation Administration, and other stakeholders
- Address freight transportation needs including trucks, air-cargos, rails and encourage rail and intermodal freight to assist
- Reduce truck vehicle miles traveled by increasing freight movement by rail and ship
- Provide strategic locations and land areas with better transportation access for freight warehousing and other facilities to support local economic development
- Develop development and design guidelines to address safety design features for land use near major rail lines and freight facilities

- How do transportation goals/objectives/polices/recommendations address emerging transportation modes and technologies and their impacts, such as connected and autonomous vehicles (CAV), transportation network companies (Uber and Lyft, etc.), small motor transportation devices/vehicles, e.g., motor scooters and bikes, mopeds, etc.?
 - Monitor and coordinate with state, federal, MPOs, and private entities on addressing emerging transportation technologies and their impacts
 - Define local policies/guidelines to recognize and encourage potential positive effects of emerging transportation technologies, such as autonomous and electric vehicles, motor scooters, and bicycles while addressing their potential adverse impacts
 - Promote a shift to zero-emission vehicles, such as electric vehicles (EV) by planning and helping implementation of infrastructure, such as EV charging stations and compatible utilities through building code requirement
 - Address land use, development, zoning, and parking regulations and guidelines to accommodate or promote EVs
 - Research/monitor potential land use and parking impacts of CAVs as they deploy and operate on roads
 - Support CAV testing
 - Explore innovative approaches by partnering with TNC to enhance human service transportation and its need
 - Explore TNC tax funding mechanism and requirement of sharing trip-level data to public agencies
- Do the transportation element address transportation facility guidelines and standards?
 - Encourage or requires transit friendly design guidelines for residential, commercial, employment, or mixed-use land uses
 - Establish and implement TOD, pedestrian and bicycle facility development, Complete Streets, and street connectivity guidelines
 - Establish and implement access management guidelines, parking requirements, and roadway/highway codes
 - Consider an APFO that addresses multimodal transportation and flexible standards for high density/compact land uses

IV. Implementation: If so desired, jurisdictions can incorporate implementation as part of Section III. Implementation measures differ from recommendations as they answer the “how” and are based on practical realities; including considerations of funding, timelines, responsible parties, partners, and other deliverables. Further, comprehensive plans frequently consolidate implementation measures across elements and topic areas into one implementation chapter. Jurisdictions taking this approach would not need to include implementation measures in the transportation element, but the suggestions below would still apply. Impactful comprehensive plans are implemented. The suggestions, considerations, and examples outlined below only scratch the surface of methods available for local plan implementation, and Maryland jurisdictions are encouraged to develop creative solutions to promoting the visions, goals, objectives, and recommendations of their communities.

Potential Organization Methods:

- N/A (in separate chapter or incorporated in Section III)**
- By mode (reflecting organization of Sections II and III above and including strategies and prioritization as described below)**
- By implementation strategy**
 - Facility Inventory and Management: Accounting/organizing existing and desired transportation-related facilities (e.g. transit stops, poorly performing roadways, bike/ped network) and developing systems for maintenance, improvement, and expansion
 - Financing Mechanisms: Establishing, targeting, leveraging, and accessing various funding sources for recommended studies, processes, capital improvements, and other action steps
 - Public Education/Information: Conducting outreach to and education of the public and other key stakeholders about transportation planning efforts and their connection to other community development needs (eg. transportation demand management, traffic calming, streetscaping, Green Streets, etc.)
 - Initiatives and Studies: Devoting resources (funding, staff time) to research transportation planning needs and develop additional focused strategies and planning documents, including corridor and feasibility studies
 - Capital Improvements: Prioritizing specific transportation and supportive infrastructure projects in the capital budget or program that advance one or more of the recommendations or action steps outlined in Section III

- Partnerships: Developing and/or managing stakeholder partnerships that support the transportation planning objectives of the plan, including neighboring jurisdictions, MPOs, state agencies, advocacy groups, and non-profit and private organizations
- Priority Letters: Revise and update annual MDOT priority letters to reflect objectives and recommendations for state transportation facilities. To improve the likelihood that MDOT will fund priority letter requests, review the department's guidance on [Chapter 725](#)
- Local legislation and regulations: Suggest revisions to local development regulations and transportation facility standards and guidelines to support plan objectives

By workplan component

- Priority: Categorize recommendations or action steps by priority level (e.g. very high, high, moderate, low)
- Phasing: Organize the implementation of recommendations or action steps as phased efforts that are contingent and build upon one another. For example, a corridor study will precede and inform anticipated streetscape improvements
- Timeframe: Schedule recommendations or action steps across a long-range period. This could include more easily accessible short-term and interim objectives that build momentum toward larger, permanent solutions
- Agency: Identify principal agencies that will implement recommendations or action steps, including required interagency coordination

Implementation Processes, Financial Mechanisms, and Resources: Statements and Considerations

- Examine financial impact of the proposed transportation improvements
- Identify reasonable financial resources, e.g., Capital Improvement Program, impact fees, developer contributions, state/federal funding, public private partnerships, Tax Increment Financing Districts, Special Taxing Districts, and other funding mechanisms
- Identify state, local, and private funding responsibilities
- Prioritize improvement recommendations to support smart growth priorities in Sustainable Communities, Smart Sites, Transit Oriented Development, Opportunity Zones, etc.
- Identify long term funding sources for pedestrian and bicycle facilities

- Identifying funding incentives for TOD and other smart growth projects
- Identify implementation programs to carry out recommendations, e.g., bike sharing program, car-pool program, transportation management area program, transit program, traffic light synchronizing program, etc.

Funding Sources

- [Transportation Network Company Assessments](#)

Note: Maryland allows jurisdictions to tax TNCs as common carriers, up to 25 cents per trip

- Maryland Department of Transportation**

- [Transportation Alternatives Program](#): A reimbursable federal aid funding program for transportation related community projects that strengthen the intermodal transportation system
- [Maryland Bikeways Program](#): Grant support for a wide range of bicycle network development activities
- [Bicycle and Pedestrian System Preservation Programs](#): Funding for upgrades to existing bike/ped facilities along state highways to meet American with Disabilities Act Accessibility Guidelines

- Maryland Department of Housing and Community Development**

- [Community Legacy](#): Eligible projects include streetscape improvements along streets that are generally not state highways
- [Strategic Demolition](#): Eligible projects include development of state designated TOD sites, compact growth and mixed-use development, and development projects that encourage walkability and recreational opportunities

- Federal funding**

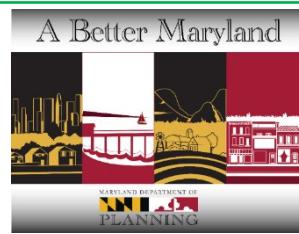
- [Surface Transportation Planning Program](#): Funding that may be used by localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals
- [Bicycle and Pedestrian Program](#): Supporting pedestrian and bicycle transportation through funding, policy guidance, program management, and resource development

- [Recreational Trails Program](#): Funding to States to develop and maintain recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses
- [Better Utilizing Investments to Leverage Development \(BUILD\) Discretionary Grants](#): Investments in surface transportation infrastructure and will be awarded on a competitive basis to projects that will have a significant local or regional impact. BUILD funding can support roads, bridges, transit, rail, ports or intermodal transportation

Additional Tools and Resources to Consider

- [MDOT Policy Manual](#)
- Designs standards including bike/ped facility standards and requirements
 - Local examples
 - [Anne Arundel County's Design Manual- Road and Streets](#)
 - [Montgomery County's Bicycle Facility Design Toolkit](#)
 - State and national Standards/guidelines
 - [SHA's "Bicycle Policy and Design Guidelines" and "Accessibility Guidelines for Pedestrian Facilities"](#)
 - [AASHTO Guide for the Development of Bicycle facilities \(2012, 4th Edition\)](#)
 - [NACTO Urban Bikeway Design Guide](#)
 - [FHWA Pedestrian and Bicycle Design Publications](#)
 - [A good resource site for ped/bike design and other related information](#)
- [Parking standards/requirements](#) in under Zoning-Article VI (Frederick County)
- [Complete Street Policies](#) (Baltimore City)
- [TOD guidelines & Tools](#)
- Adequate Public Facility Ordinance (APFO) requirements for roads or multimodal facilities
 - [Queen Anne's County](#)
 - [City of Rockville Comprehensive Transportation Review](#)
 - [Frederick County APFO with Multimodal Considerations](#)

If you have questions about this checklist or any of the resources it contains, please contact the individuals listed throughout the document, or Joe Griffiths, Local Assistance and Training Manager for the Maryland Department of Planning at joseph.griffiths@maryland.gov or 410-767-4553. We also welcome any suggestions on how we can improve this resource!



Transportation Element Checklist Data Table

	Dataset	Data Location URL	Reference URL
1	VMT		https://www.roads.maryland.gov/mdotsha/pages/index.aspx?PageId=302
2	MPO Boundary	http://data imap.maryland.gov/datasets/maryland-incentive-zones-metropolitan-planning-organizations-boundaries	https://geodata.md.gov/imap/rest/services/BusinessEconomy/MD_IncentiveZones/FeatureServer/14
3	Average Commute Time by Jurisdiction		https://planning.maryland.gov/MSDC/Pages/american_community_survey/2012-2016/County/County.aspx
4	Right of Way Information	ROW - https://maryland.maps.arcgis.com/home/item.html?id=30accb802c1a415d9281ef64f9b9ca14 ROW Polygon - https://maryland.maps.arcgis.com/home/item.html?id=9e501aa151fd4b79a8e2fea7dac97a34#overview	
5	Pavement Condition	https://data-maryland.opendata.arcgis.com/datasets/pavement-condition-nhs-2016/data	https://services.arcgis.com/njFNhDsUCentVJW/arcgis/rest/services/Pavement_Condition_NHS_2016/FeatureServer/0

6	AADT w/Peak Volume & % truck traffic, etc.	https://data imap.maryland.gov/datasets/maryland-annual-average-daily-traffic-annual-average-daily-traffic-share-statewide-aadt-lines	https://geodata.md.gov/imap/rest/services/Transportation/MD_AnnualAverageDailyTraffic/FeatureServer
7	Level of Service (LOS)		Currently unavailable online. Will be added when available. Please contact SHA for LOS information. https://www.roads.maryland.gov/mdotsha/pages/index.aspx?PageId=507
8	Speed limits	http://data imap.maryland.gov/datasets/maryland-roadway-posted-speed-limits-roadway-posted-speed-limit-signs	https://geodata.md.gov/imap/rest/services/Transportation/MD_RoadwayPostedSpeedLimits/FeatureServer/0
9	Bridge/Structures	https://data maryland.opendata.arcgis.com/datasets/f5612c555e614124bcb577e89b23e091_0	
10	Freight Routes	https://maryland.maps.arcgis.com/apps/MapJournal/index.html?appid=874cb859a5c346498d61a80157beda30	
11	Park & Rides (ALL MDOT)	http://data imap.maryland.gov/datasets/maryland-mdot-sha-park-and-ride-facilities-mdot-sha-park-and-ride-facilities	
12	CTP Projects	https://geodata.md.gov/appdata/rest/services/BudgetMaps/MD_BudgetMaps/FeatureServer	
13	Ports (location, depth, other characteristics)	https://maryland.maps.arcgis.com/home/item.html?id=c7e2b2c07d9043f9b4c34aa1b9815224	