Guidance for Comprehensive Transportation Review in the District of Columbia: A Parking, Design, and TDM-Focused Alternative to the Traditional Traffic Impact Study in an Urban Setting

100th TRB Annual Meeting – January 25, 2021

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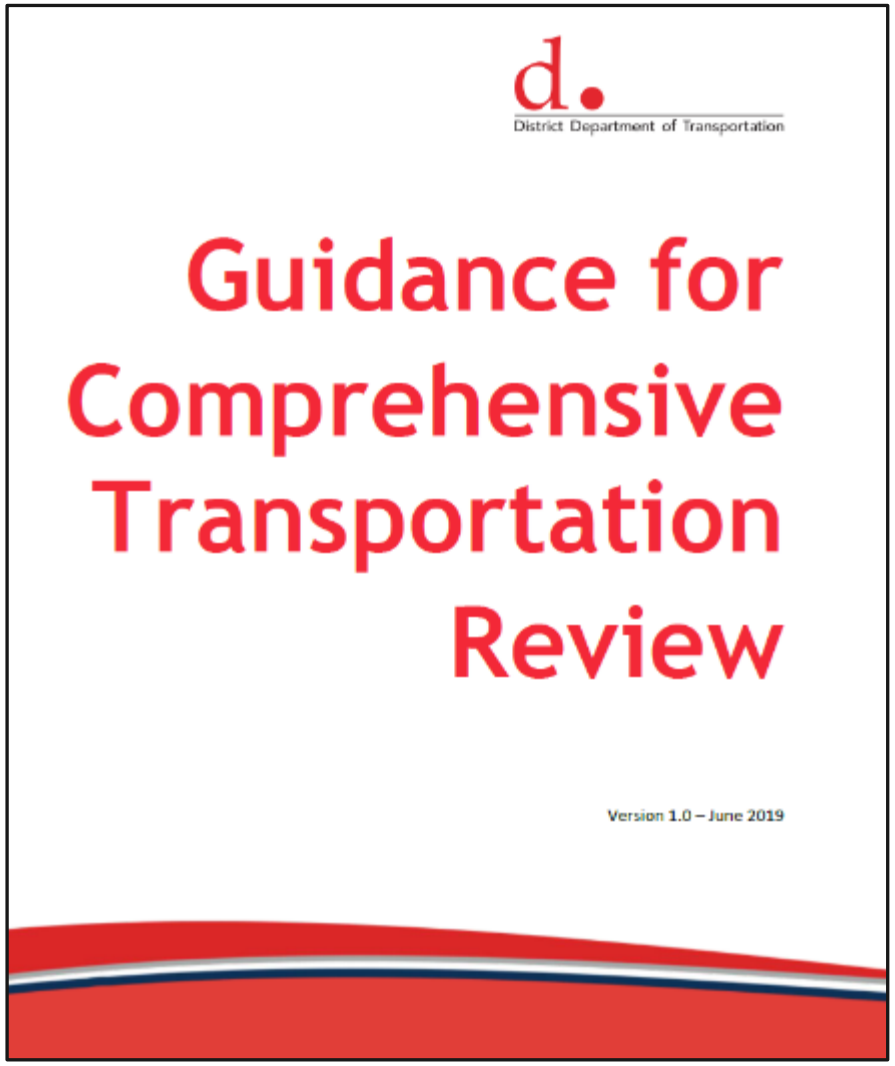
GOVERNMENT OF THE DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

2021 Comprehensive Transportation Review (CTR) Guidelines



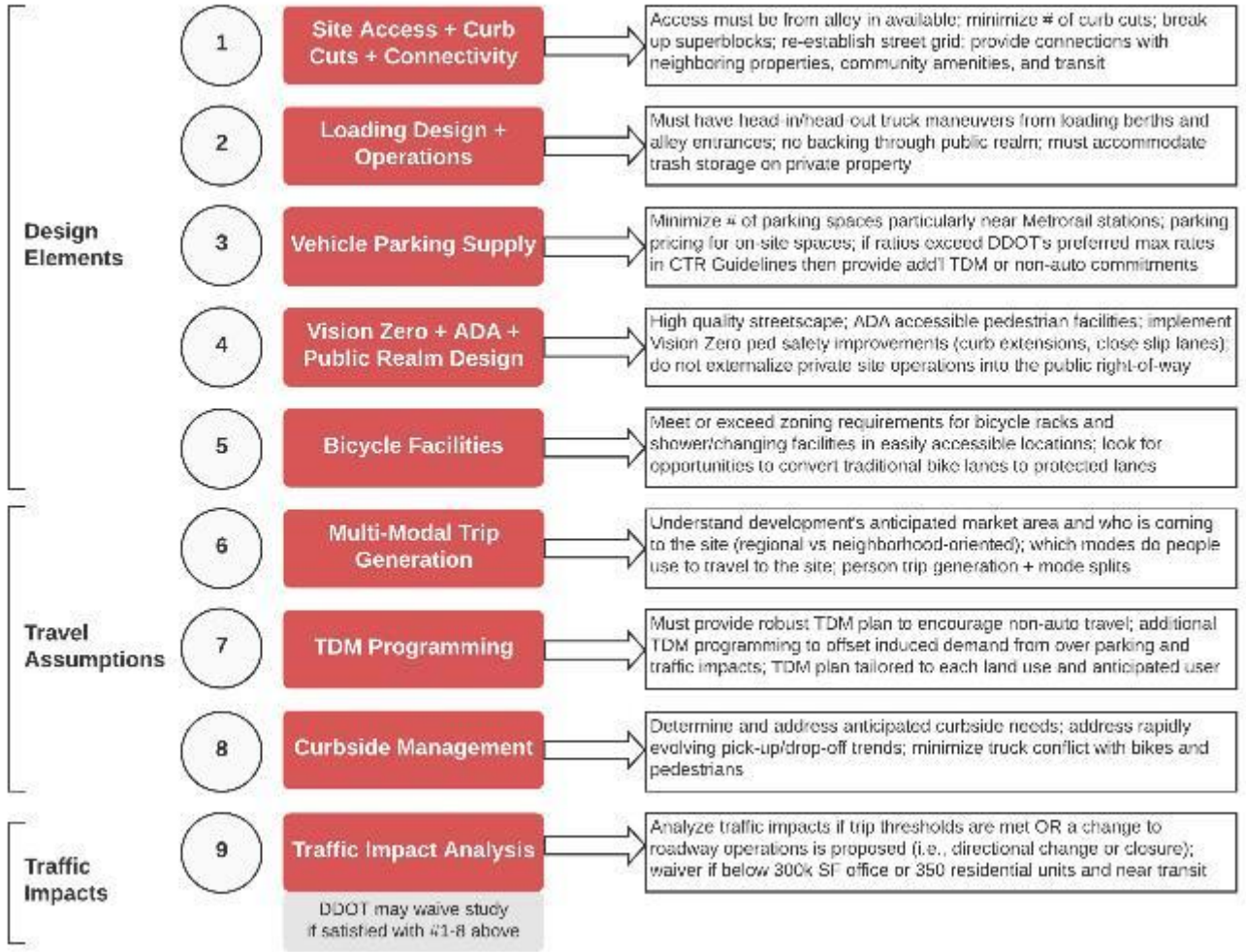
2021 CTR Guidelines Highlights

- CTR is DDOT's multimodal version of a TIS
- Repurposed LOS analysis to leverage non-auto improvements
- Established agency preferred off-site parking maximums based on land use and distance to transit – mitigation required for providing more parking to account for induced demand
- Established standardized TDM plans for mitigation based on traffic impacts and parking supply
- CTR waiver for infill sites with low parking ratios and being transit proximate (~300,000 SF or less)
- Heavy focus on Vision Zero, public realm design, and site design

Version 1.0 Guidelines can be found at: https://ddot.dc.gov/node/470382

Version 2.0 anticipated to be released in Spring/Summer 2021

DDOT's Site Review Priorities



Source: Forthcoming 2021 Updated CTR Guidelines

Old Model

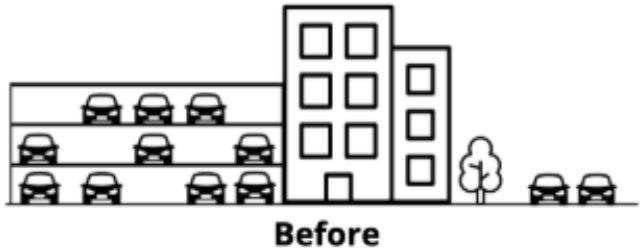
- **Traffic study first…** all decisions flow out of the traffic study… solutions almost always auto-oriented and capacity increasing

New Model

- **Design first…** the most important mitigation begins w/the bldg itself. Safe & high-quality public realm most important feature of project
- **Traffic impacts last…** b/c if you plan and design for auto-oriented development, you'll get high traffic generating development

Why Focus on Minimizing Parking?

- DC projected population increase of 187,000 by 2035. Roadway system is built out and congested, everybody can't bring a car, growth must rely on non-auto options
- **More density** – less parking allows for more density while generating minimal additional new personal vehicle trips, especially in Metro-accessible areas
- **Reduce vehicle trips** – TDM, minimal parking, priced parking, and proximity to high quality transit all work together to reduce vehicle trips
- **Reduce auto dependency** – parking is permanent site feature and driver of vehicle trips, availability of parking induces more driving and reinforces auto dependency
- **Transit supportive** – little or no parking brings "transit-ready" residents/workforce
- **Site design flexibility** – buildings can be moved around into more optimal locations, and site can provide more green space, trees, and bike racks
- **Housing affordability** – not building parking saves $$ that can be passed on to future residents/tenants
- **Mitigation and TIAs are also costly** – more $$ can be saved by not conducting TIAs or implementing physical mitigation if meeting DDOT parking & TDM requirements
- **Vision Zero** – no on-site parking means no need for a driveway or curb cut, thus minimizing conflicts w/pedestrians
- **Climate change** – less parking and driving means less exhaust and CO2 per capita



Source: MAPC Perfect Fit Parking

DDOT Preferred Max Parking Ratios

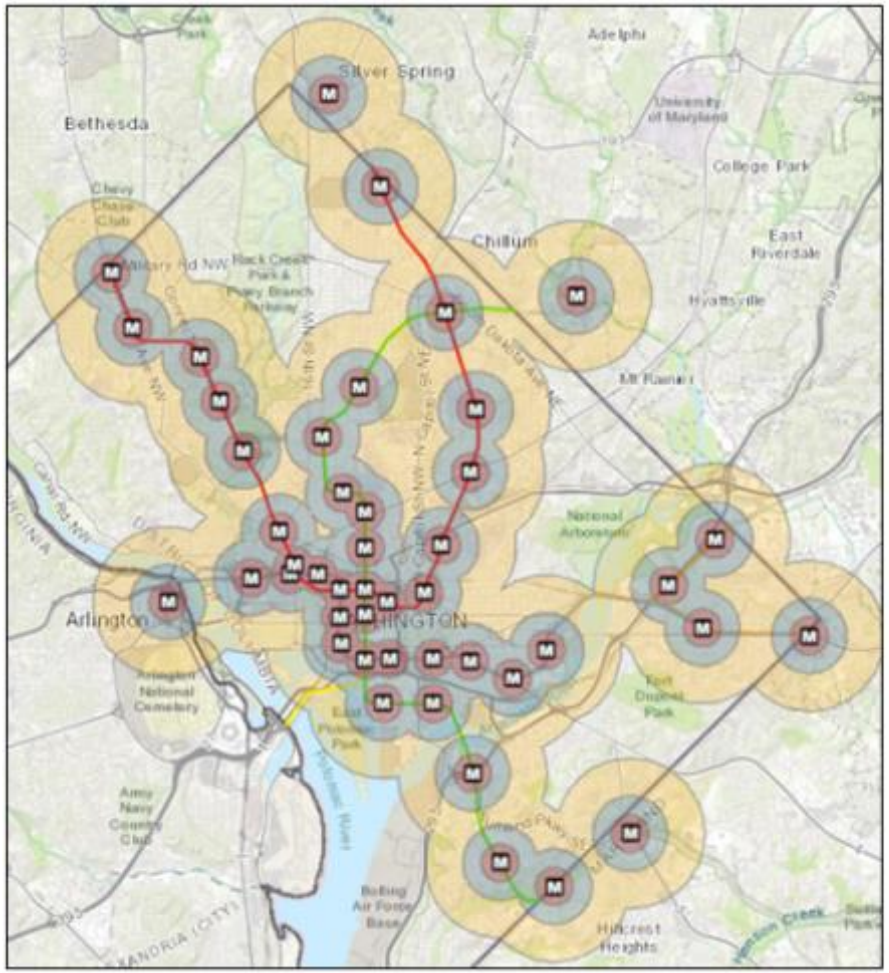
Land Use	< ¼ mile of Metrorail	< ½ mile of Metrorail OR < ¼ mile of Priority Bus/Streetcar	<1.0 mile of Metrorail	>1.0 mile of Metrorail
Based on Mode Share Goal:	85% Non-Auto	80% Non-Auto	75% Non-Auto	65% Non-Auto
Residential	0.25 or less spaces/unit ~1 per 4 units	0.35 or less spaces/unit ~1 per 3 units	0.40 or less spaces/unit ~1 per 2.5 units	0.55 or less spaces/unit ~1 per 2 units
Office	0.40 or less spaces/1k GSF ~1 per 6 employees	0.50 or less spaces/1k GSF ~1 per 5 employees	0.65 or less spaces/1k GSF ~1 per 4 employees	0.85 or less spaces/1k GSF ~1 per 3 employees
Hotel	0.35 or less spaces/1k GSF ~1 per 6 rooms	0.45 or less spaces/1k GSF ~1 per 5 rooms	0.60 or less spaces/1k GSF ~1 per 4 rooms	0.75 or less spaces/1k GSF ~1 per 3 rooms
Retail	1.00 or less spaces/1k GSF	1.25 or less spaces/1k GSF	1.60 or less spaces/1k GSF	2.00 or less spaces/1k GSF

Source: Forthcoming 2021 Update to CTR Guidelines

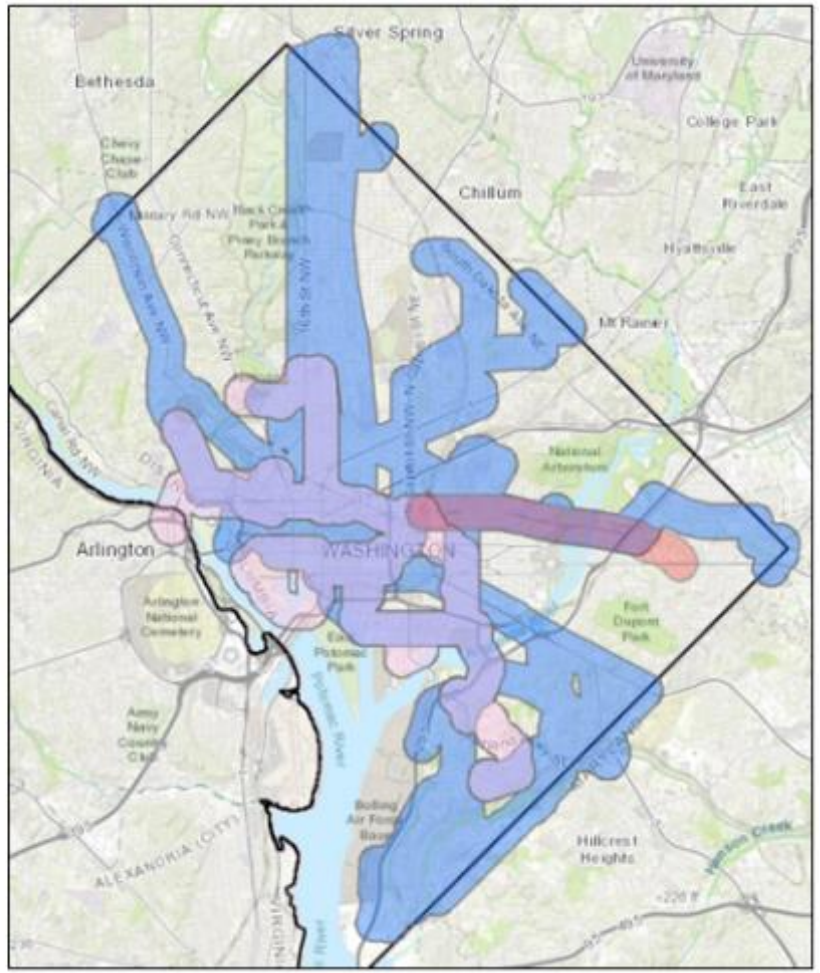
- Developments should provide no more than the amount of off-street parking in this table.
- Mitigation is required for ratios provided above these to account for induced demand for driving.

Areas Adjacent to Transit for Reduced Off-Street Parking

¼ , ½, and 1 mile from Metrorail



¼ mile from Streetcar / Priority Bus



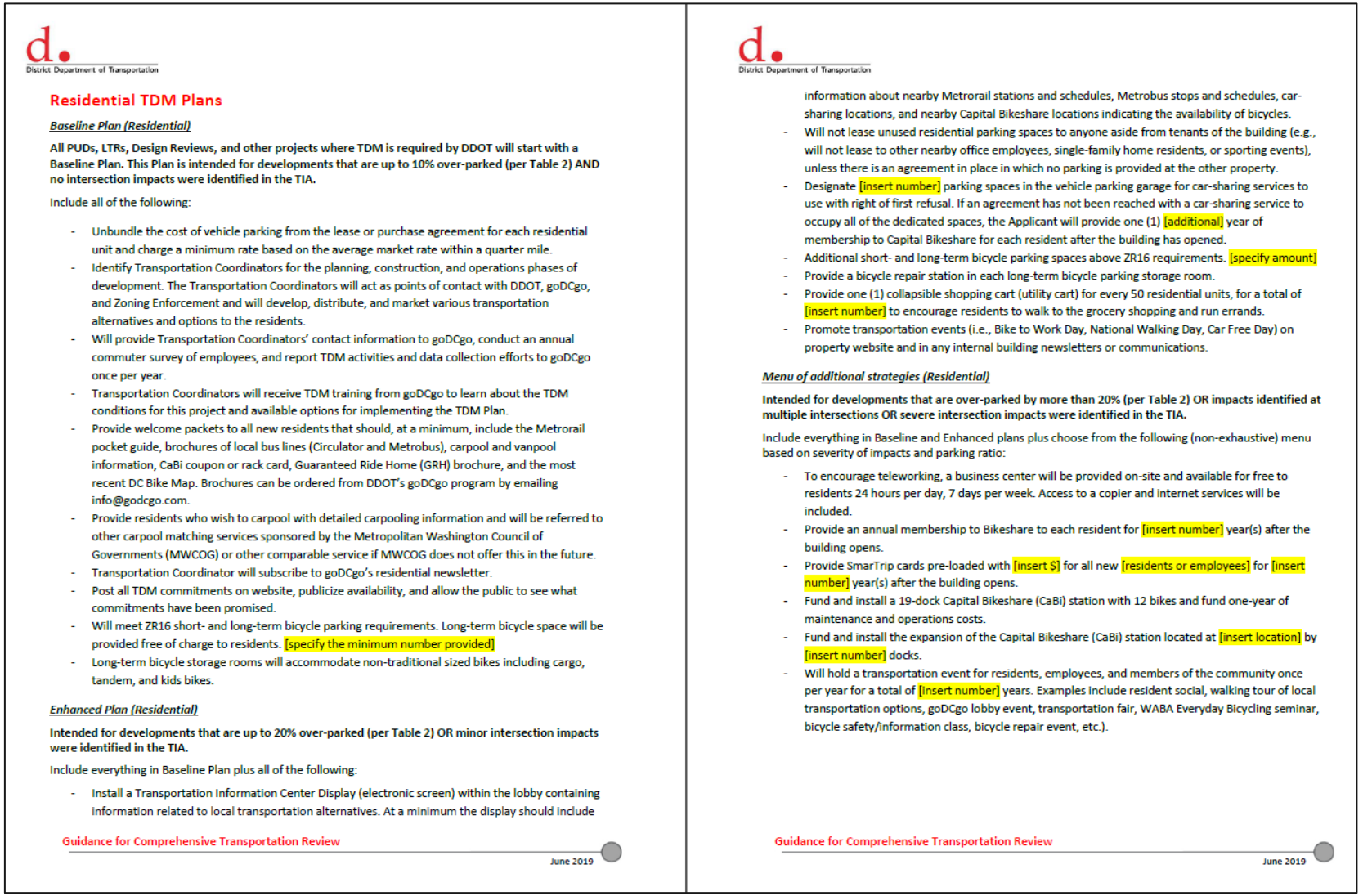
Source: Forthcoming 2021 Update to CTR Guidelines

Interactive maps can be found here:

Metrorail
https://arcg.is/19ajqu

Streetcar/Priority Bus
https://arcg.is/1CHTeb

Standardized TDM Plans by Land Use and Impact



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Residential TDM Plans

Baseline Plan (Residential)

All PUDs, LTRs, Design Reviews, and other projects where TDM is required by DDOT will start with a Baseline Plan. This Plan is intended for developments that are up to 10% over-parked (per Table 2) AND no intersection impacts were identified in the TIA.

Include all of the following:

- Unbundle the cost of vehicle parking from the lease or purchase agreement for each residential unit and charge a minimum rate based on the average market rate within a quarter mile.
- Identify Transportation Coordinators for the planning, construction, and operations phases of development. The Transportation Coordinators will act as points of contact with DDOT, goDCgo, and Zoning Enforcement and will develop, distribute, and market various transportation alternatives and options to the residents.
- Will provide Transportation Coordinators' contact information to goDCgo, conduct an annual commuter survey of employees, and report TDM activities and data collection efforts to goDCgo once per year.
- Transportation Coordinators will receive TDM training from goDCgo to learn about the TDM conditions for this project and available options for implementing the TDM Plan.
- Provide welcome packets to all new residents that should, at a minimum, include the Metrorail pocket guide, brochures of local bus lines (Circulator and Metrobus), carpool and vanpool information, CaBi coupon or rack card, Guaranteed Ride Home (GRH) brochure, and the most recent DC Bike Map. Brochures can be ordered from DDOT's goDCgo program by emailing info@godcgo.com.
- Provide residents who wish to carpool with detailed carpooling information and will be referred to other carpool matching services sponsored by the Metropolitan Washington Council of Governments (MWCOG) or other comparable service if MWCOG does not offer this in the future.
- Transportation Coordinator will subscribe to goDCgo's residential newsletter.
- Post all TDM commitments on website, publicize availability, and allow the public to see what commitments have been promised.
- Will meet ZR16 short- and long-term bicycle parking requirements. Long-term bicycle space will be provided free of charge to residents. [specify the minimum number provided]
- Long-term bicycle storage rooms will accommodate non-traditional sized bikes including cargo, tandem, and kids bikes.

Enhanced Plan (Residential)

Intended for developments that are up to 20% over-parked (per Table 2) OR minor intersection impacts were identified in the TIA.

Include everything in Baseline Plan plus all of the following:

- Install a Transportation Information Center Display (electronic screen) within the lobby containing information related to local transportation alternatives. At a minimum the display should include

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information about nearby Metrorail stations and schedules, Metrobus stops and schedules, car-sharing locations, and nearby Capital Bikeshare locations indicating the availability of bicycles.

- Will not lease unused residential parking spaces to anyone aside from tenants of the building (e.g., will not lease to other nearby office employees, single-family home residents, or sporting events), unless there is an agreement in place in which no parking is provided at the other property.
- Designate [insert number] parking spaces in the vehicle parking garage for car-sharing services to use with right of first refusal. If an agreement has not been reached with a car-sharing service to occupy all of the dedicated spaces, the Applicant will provide one (1) [additional] year of membership to Capital Bikeshare for each resident after the building has opened.
- Additional short- and long-term bicycle parking spaces above ZR16 requirements. [specify amount]
- Provide a bicycle repair station in each long-term bicycle parking storage room.
- Provide one (1) collapsible shopping cart (utility cart) for every 50 residential units, for a total of [insert number] to encourage residents to walk to the grocery shopping and run errands.
- Promote transportation events (i.e., Bike to Work Day, National Walking Day, Car Free Day) on property website and in any internal building newsletters or communications.

Menu of additional strategies (Residential)

Intended for developments that are over-parked by more than 20% (per Table 2) OR impacts identified at multiple intersections OR severe intersection impacts were identified in the TIA.

Include everything in Baseline and Enhanced plans plus choose from the following (non-exhaustive) menu based on severity of impacts and parking ratio:

- To encourage teleworking, a business center will be provided on-site and available for free to residents 24 hours per day, 7 days per week. Access to a copier and internet services will be included.
- Provide an annual membership to Bikeshare to each resident for [insert number] year(s) after the building opens.
- Provide SmarTrip cards pre-loaded with [insert $] for all new [residents or employees] for [insert number] year(s) after the building opens.
- Fund and install a 19-dock Capital Bikeshare (CaBi) station with 12 bikes and fund one-year of maintenance and operations costs.
- Fund and install the expansion of the Capital Bikeshare (CaBi) station located at [insert location] by [insert number] docks.
- Will hold a transportation event for residents, employees, and members of the community once per year for a total of [insert number] years. Examples include resident social, walking tour of local transportation options, goDCgo lobby event, transportation fair, WABA Everyday Bicycling seminar, bicycle safety/information class, bicycle repair event, etc.).

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- Standardized TDM Plans for Residential, Office, Retail, Hotel/Tourism in Appendix C
- Strategies tailored to users: residents, employees, visitors, customers
- Three Tiers of TDM Plans based on parking and traffic impacts
  - Baseline
  - Enhanced
  - Enhanced Plus

Non-Auto Improvements as Mitigation

PARKING SUPPLY (see Table 2 in CTR Guidelines)	TRAFFIC IMPACTS: No Impacts (no intersections degrade to unacceptable levels)	Minor Impacts at One Intersection (signal timing or cycle length adjustments only)	Minor Impacts at Multiple Intersections (signal timing or cycle length adjustments only)	Severe Impacts at One or More Intersections (physical roadway improvements beyond signal timing adjustment)
At or Below Benchmark	Baseline TDM Plan	Baseline TDM Plan	Enhanced TDM Plan	Enhanced TDM Plan + Direct Mitigation OR Additional TDM OR Monetary Contribution OR Non-Auto Upgrades OR Performance Monitoring TBD
Up to 10% Over-Parked	Baseline TDM Plan	Enhanced TDM Plan	Enhanced TDM Plan + Additional TDM OR Non-Auto Upgrades to be Negotiated	Enhanced TDM Plan + Direct Mitigation OR Additional TDM OR Monetary Contribution OR Non-Auto Upgrades OR Performance Monitoring TBD
Up to 20% Over-Parked	Enhanced TDM Plan	Enhanced TDM Plan + Additional TDM OR Non-Auto Upgrades to be Negotiated	Enhanced TDM Plan + Additional TDM OR Non-Auto Upgrades to be Negotiated	Enhanced TDM Plan + Direct Mitigation OR Additional TDM OR Monetary Contribution OR Non-Auto Upgrades OR Performance Monitoring TBD
Over 20% Over-Parked	Enhanced TDM Plan + Additional TDM OR Non-Auto Upgrades to be Negotiated	Enhanced TDM Plan + Additional TDM OR Non-Auto Upgrades to be Negotiated	Enhanced TDM Plan + Additional TDM OR Non-Auto Upgrades to be Negotiated	Enhanced TDM Plan + Direct Mitigation OR Additional TDM OR Monetary Contribution OR Non-Auto Upgrades OR Performance Monitoring TBD

Source: Forthcoming 2021 Update to CTR Guidelines

Hierarchy of Mitigation

(1) Establish optimal site design

(2) Reduce vehicle parking

(3) Implement more TDM

(4) Upgrade ped/bike/transit facilities

(5) Monetary contribution toward non-auto modes

(6) Roadway capacity changes (last resort)

Example – Mitigation

5 M Street SW Project

- 608 Res. Units, 24k SF Retail
- 311 Parking spaces, 1 Block from Metrorail

Mitigation Tests

- Parking Test – Over-parked by 104 spaces
- LOS Test – 4 failing intersections

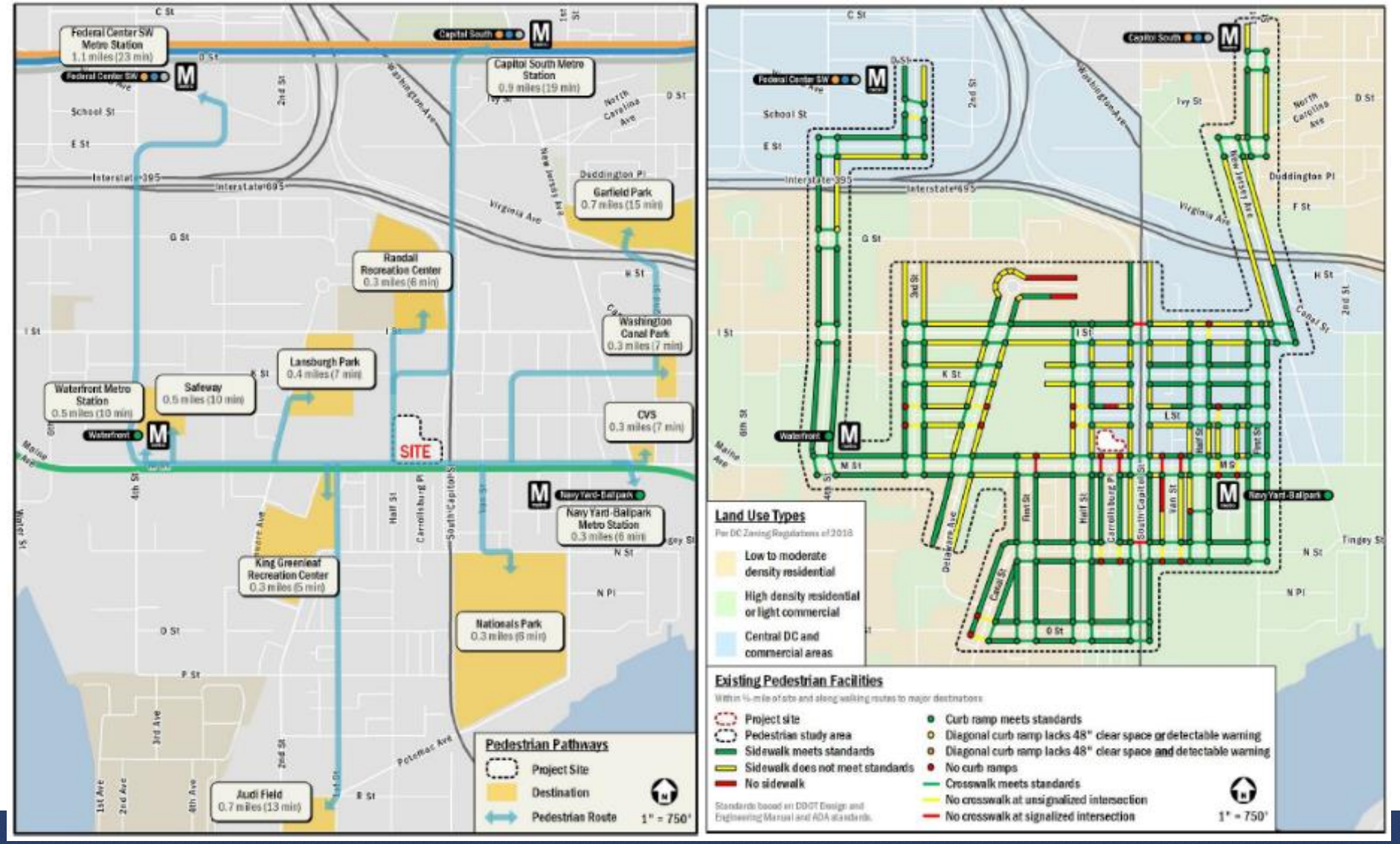
Negotiated Mitigation

- Enhanced Tier TDM Plan
- Install two (2) CaBi expansion plates
- Contribute $90,000 toward Mitigation Fund
- Construct 3 curb extensions
- CaBi memberships to each new resident (1 yr)
- Shift bus stop & new bus pad
- ***No roadway capacity increases***

Pedestrian Network Gap Analysis

Evaluate Completeness and Accessible Pedestrian Connections to:

- Transit
- Parks
- Schools
- Grocery Stores
- Stadiums
- Activity Centers
- Other Amenities



Source: Gorove/Slade Associates – 5 M St SW Project

Checklist for Frontage and Off-Site Vision Zero Improvements

Geometric and Site Design

- Minimize # of curb cuts
- Curb extensions
- Reduce curb radii
- Remove slip lanes & channelized turn lanes
- Square up skewed intersections
- Head-in/head-out loading
- Add tree boxes and street trees
- Convert bike lanes to protected bikeways
- Road diets, narrower lanes, lower design speed
- Upgrade sidewalks and curb ramps to ADA
- Upgrade to high-visibility crosswalks
- T intersections – ramps & crosswalks all legs
- 300-500 foot block lengths
- Activated streetscape
- Reduced on-site parking

Traffic Signal Changes

- Install HAWK ped signal
- Remove dual left-turns
- Remove right-turn overlaps
- Leading Pedestrian Intervals
- Signal timing progression priority for cyclists in select bike corridors

Example – Account for Parking in Trip Generation Calcs

Low Parking Ratio Site

175 Residential Units

20 Parking Spaces

65% auto mode share

ITE Methodology (vehs)

CTR/ TIA 

AM: 11 enter, 30 exit

PM: 31 enter, 19 exit

DDOT Adjusted (vehs)

CTR/ TIA 

AM: 11 enter, ~~30~~ 20 exit

PM: ~~31~~ 20 enter, 19 exit

High Parking Ratio Site

175 Residential Units

~~20~~ 100 Parking Spaces

~~65%~~ 85% auto mode share

ITE Methodology (vehs)

AM: 11 enter, 30 exit

PM: 31 enter, 19 exit

CTR/ TIA 

DDOT Adjusted (vehs)

AM: ~~11~~ 14 enter, ~~30~~ 40 exit

PM: ~~31~~ 40 enter, ~~19~~ 25 exit

CTR/ TIA 

+ Mitigation for induced demand

Note: Use professional judgment and knowledge of local conditions and commuting patterns to also account for the potential of ride-hailing trips

Low Impact Development Waiver from CTR and/or TIA

CTR Required: 100 total peak hour person trips

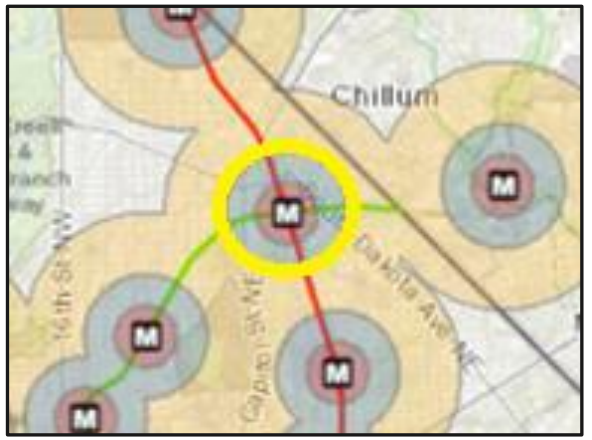
TIA Required: 25 peak hour inbound or outbound vehicle trips

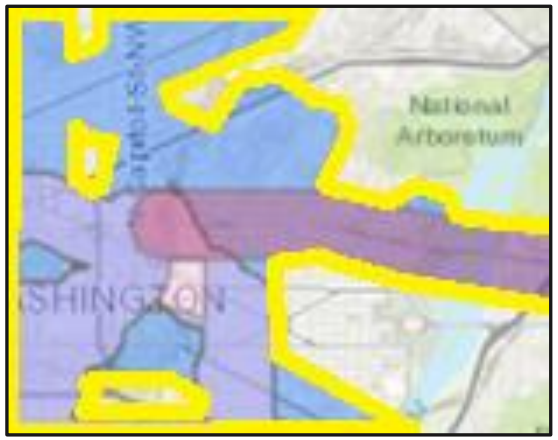
CTR and/or TIA may be waived if all criteria met:

- Within ½ mile of Metrorail station or ¼ mile from Streetcar/Priority Bus
- Parking supply lower than amount for ¼ mile from Metrorail column
- Total parking supply of 100 or fewer spaces (generally ~300,000 SF or less)
- Implement "Enhanced" tier TDM Plan
- Ensure complete ped network (install missing sidewalks & curb ramps, etc.)
- Curb cuts and loading meet standards (or approved by PSC)
- Meets bike parking and showers/lockers requirements
- Provide 2 EV charging stations

However…

- Will still need to provide a Transportation Statement explaining all agreed to commitments, rationale for waiver, and other basic info about project.
- DDOT may still require analysis of site access, curbside uses, pick-up/drop-off, on-street/off-site parking, etc. depending on specific proposal.
- Developer may still choose to do a "defensive TIA" to address specific concerns raised by the ANC and members of the community.





Land Use		Less than ¼ Mile from Metrorail	¼ to ½ Mile from Metrorail OR Less than ¼ Mile from Priority Transit**
Residential *(spaces/unit)*	**DDOT:** ZR16 Min-Max:	**0.30 or less** 0.17* - 0.67	**0.40 or less** 0.17* - 0.67
Office *(spaces/1,000 GSF)*	**DDOT:** ZR16 Min-Max:	**0.40 or less** 0.25* - 1.00	**0.50 or less** 0.25* - 1.00
Hotel *(spaces/1,000 GSF)*	**DDOT:** ZR16 Min-Max:	**0.40 or less** 0.25* - 1.00	**0.45 or less** 0.25* - 1.00
Retail *** *(spaces/1,000 GSF)*	**DDOT:** ZR16 Min-Max:	**1.00 or less** 0.67* - 2.66	**1.25 or less** 0.67* - 2.66
Other Uses	**DDOT:** ZR16 Min-Max:	**75% of § 701.5 or less** 50% - 200% of § 701.5*	**90% of § 701.5 or less** 50% - 200% of § 701.5*

DDOT Lessons Learned

- **Turned review from exercise in traffic impact analysis to site-based design review**
  - Reduced number of required TIA/CTRs by about 1/3, but an increase in “defensive” TIAs for community and ANC
  - Scope of studies are better tailored to needs of project – no need to study 20 intersections for every project
  - Saving significant amount of staff time on scoping and reviewing – across multiple divisions
  - Quicker reviews allows staff to work on other agency priorities
  - Greater frequency of DDOT reports submitted on time
- **Site design, parking supply, TDM, and mitigation negotiation all resolved earlier process**
  - Prevents a lot of back-and-forth w/developer in week leading up to zoning hearing
  - More discussions on ped realm and Vision Zero have resulted in more curb extensions + removal of slip lanes
  - Project design and mitigation negotiations sometimes wrapped up as early as the pre-application meeting
- **Positive feedback from developers**
  - Better consistency in mitigation “asks” from DDOT
  - DDOT max parking ratios give developer cover with lenders and community who want more off-street parking
- **Change in skill sets in employees hired in Development Review group**
  - Less Synchro, more urban design

DDOT Recommendations for Other Jurisdictions

- DDOT's new model of development review is applicable to other jurisdictions, either entirely or individual components, especially if there is access to high-quality transit
- Planning for auto-oriented development will yield higher traffic generating projects
- Invest in high quality transit – it's the linchpin to allowing higher densities, reducing auto-dependency, and giving more policy options in the review of new development
- A focus on reduced parking, Vision Zero, and pedestrian realm design are most important for the 21st Century City and are a better use of staff time than on scoping/writing/reviewing TIAs
- Streamlining the CTR/TIA process can save a tremendous amount of agency staff time (e.g., study waiver, standardized TDM plans, clear public realm design criteria)
- Consider other agency and city public policy goals, aside from traffic congestion relief, when developing site review priorities (e.g., housing, equity, ped safety)
- Take a firm stance against roadway capacity increases or widenings since they induce demand for driving and encourage auto-dependency; negotiate non-auto network improvements or cash in-lieu
- Consider having the development review function sit within a planning or public realm design/activation group, rather than with traffic engineers or signal engineers

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District Department of Transportation

Extra Slides

Evolution of CTRs/TIAs in the District

Pre-2012: Traditional Traffic Impact Study (TIS)

- Propose a development, do a traffic study, directly mitigate roadway LOS impacts
- Introduced concept of TDM and non-auto in lieu of roadway mitigation

2012-2018: Multi-Modal CTR Study ("2012 Beta Version")

- Early national leader in using multi-modal person-trips methodology (ultimately adopted by ITE in Trip Gen Handbook)
- Changed from TIS to Comprehensive Transportation Review (CTR)
  - De-emphasized TIA/TIS as "be all, end all" of site review
- New perspective – traffic analysis does not drive all decision making (more often ped safety & public space design)
  - Less focus on accommodating driving in by suburban commuters, more focus on livability and quality of life for District residents
- Introduced concept that parking is a driver of vehicle trips – parking is not just a static zoning requirement
  - Adjust veh trip gen based on reduced or over-supply of parking
  - Right-size residential parking based on ParkRightDC data

2019 & 2021: CTR w/greater focus on Site Design, Parking, TDM ("2019 v1.0" and "2021 v2.0")

- Introduces off-street maximum vehicle parking benchmarks by land use and proximity to transit
  - Benchmarks tied to parking demand research and MoveDC & Comp Plan modeshare goals of 75% non-auto H-W trips
  - Goes beyond right-sizing parking based on present demand and attempts to drive modeshift by cutting back on parking more
- Moves toward a "site-based" design review which incentivizes high quality project design, transit accessibility, and incorporating DDOT Vision Zero principles
- TIA now just one component of much broader multi-modal evaluation and only triggered in certain situations. Scope the study to the unique needs of the project rather than studying LOS at 20 intersections for the sake of it
- Created Low Impact Development waiver for projects w/low parking ratio, near transit, and under has fewer than 100 parking spaces (~300,000 GSF of development)

DDOT Research Papers, Presentations, and Tools

2013: Transitioning from Traditional TIS to Comprehensive Multi-Modal Transportation Review

2014: An Innovative Approach for Establishing Vehicular Trip Caps for New Developments

2015: Estimating Parking Utilization in Multi-Family Residential Buildings in Washington DC
Predicting Travel Impacts of New Development in Major Cities: Testing Alternative Trip Gen Models
Methodology to Gather Multi-Modal Urban Trip Generation Data

2016: New Zoning Regulations – eliminated or reduced parking mins based on location, added maxes w/penalties
Park Right DC - http://parkrightdc.org/
Trips DC - https://tripsdc.org/
District Mobility - https://districtmobility.org/

2017: Multimodal Trip Generation Model to Assess Travel Impacts of Urban Developments in DC
TDM Menu Tool

2019: Guidance for Comprehensive Transportation Review, v 1.0

2020: Comprehensive Transportation Review in DC: A Parking, Design, and TDM-focused Alternative to the TIS

All of the above studies, papers, posters, and Presentations are available upon request

What is Unique About DC?

Other cities should take into account the following if considering adopting CTR Guidelines methods:

- **Proffer System**
  - Mitigation is negotiable, no impact fees, no APFO; DDOT has flexibility to define what an "impact" is and how to remedy it
  - DDOT not required to take roadway mitigation directly from LOS analysis; agency policy not to take roadway capacity increasing improvements but instead require cash in-lieu, non-auto improvements, or additional TDM
- **Much of DC is Not Auto-Dependent**
  - DC has excellent transit and is almost entirely urban context – mostly infill development
  - 88% of new DC households are car-free *(Census, Chung GGW Article 9/12/14)*
  - 78% of new development within ½ mile/walking distance of Metrorail *(2014/15 DC Development Report)*
- **DC is a City + County + State**
  - DDOT is a DOT for all of those levels of govt so don't have to deal with multiple other DOTs with differing missions
  - DDOT issues curb cut permits and controls the public space permitting process
- **DC is a fast growing city**
  - A lot of new development and population growth gives opportunities to transform the landscape of the city
- **CTR Guidelines do not need to be approved by a planning commission or city council**
  - Since the CTR Guidelines are DDOT-PSD policy, there is more ability to experiment and quickly adjust policies
- **DC has no city-wide TDM ordinance**
  - Must negotiate a TDM Plan on each project when PSD review triggered (PSD does not review all developments)
- **DDOT and DC Office of Planning work in close collaboration on land use + transportation**
  - Both support higher density, mixed-use, and reduced on-site parking, especially near transit
- **DC has maximum height limit of about 13 stories which acts as a natural cap on site density**
- **DC has an independent Public Space Committee (PSC) to adjudicate public realm design disputes**
- **DDOT has agency culture that embraces innovation, experimentation, and disruption**

DDOT Approach to Mitigation

Impact Policy

- Must mitigate high parking ratio and intersection capacity impacts (LOS, V/C, queueing).
- Must propose roadway mitigation to demonstrate they could work, but DDOT reserves right to instead request something else of comparable value or considering mode shift impact.
- Signal timing/cycle length adjustments are not implemented in conjunction w/a specific project since signals are in coordinated networks + not clear future traffic will materialize as projected.
    - DDOT updates signal timings on 5 +/- year rotating basis which picks up traffic from new developments and changes in travel patterns.

Hierarchy of Mitigation (in order of DDOT preference):

(1) Establish optimal site design
(2) Reduce vehicle parking
(3) Implement more TDM
(4) Upgrade ped/bike/transit facilities
(5) Monetary contribution toward non-auto facilities
(6) Roadway capacity changes (only if deemed necessary by DDOT)

Performance Monitoring Plans (PMP)

When is a PMP Required?

- Campus Plans (Georgetown, Catholic, American, etc)
- Larger developments (Wharf, McMillan, etc)
- Projects with high SOVs (schools, daycares, etc)

PMPs Include the Following:

- Initial trigger (i.e., % occupancy) and set of initial TDM strategies
- Trip cap or modeshare goal
- Reporting requirements (i.e., frequency, data needs, surveys)
- Sun setting conditions (i.e., number of years)
- Course of action if goals not met

PMP Enforcement if Goals Not Met:

- Meet w/DDOT to determine more effective TDM strategies
- PMP extended for additional years, until goals met
- DDOT could report zoning violation to Office of Zoning and/or Zoning Administrator
- DDOT to recommend denial in future zoning cases or withhold public space permit

Topics for Future Research / Exploration

- Relationships between parking, auto-ownership, and trip generation
- Is there a need to split vehicle trip gen into trips by personal vehicles vs ride-hailing vehicles?
- Implications to mode shift, transit ridership, auto ownership, and curbside usage from reduced parking
- Implications to mobility for different lifestyles, stages of life, and geographic and socioeconomic equity
- Explore ways to use VMT or VMT/capita at site level or a different metric (e.g., Walk Score)
- Metrics for non-auto modes (beyond connectivity and ADA accessibility)
- Quantify impacts of individual and cumulative TDM strategies
- Respond to rapidly evolving urban freight and curbside challenges
- Measure impacts of micro-mobility and other last-mile travel options
- Differing needs and travel patterns between projects targeting affluent, market rate, and affordable markets
- Explore implementation of development and/or transit impact fees
- Prepare for AVs and ensure they do not encourage SOVs and undermine public transit

(more topics listed in *Guidance for Comprehensive Transportation Review, Version 2.0*)