National Capital Region
Transportation Planning Board

MEMORANDUM

TO: TPB Technical Committee

FROM: Wendy Klancher and Sergio Ritacco, TPB Transportation Planners

SUBJECT: Proposed Enhancements to the Title VI/Environmental Justice Analysis of the Financially Constrained Long-Range Transportation Plan (CLRP): Phase 1: "Communities of Concern"

DATE: October 7, 2016

PURPOSE

This memorandum describes the proposed enhancements to the Title VI and Environmental Justice (EJ) analysis of the Financially Constrained Long-Range Transportation Plan (CLRP), and specifically describes the methodology for Phase 1: Identification of "Communities of Concern". The two major enhancements to the EJ analysis are: 1) the identification of small geographic areas with significant concentrations of low-income or minority populations: "Communities of Concern" and 2) the use of multiple transportation measures to assess the impact of the CLRP on the "Communities of Concern".

SUMMARY

The Technical Committee was briefed on September 9, 2016 on the federal requirements for an EJ analysis, and the planned enhancements to the TPB analysis of the CLRP that will occur in two phases. Phase 1 is underway and will be completed when the TPB concurs with Phase 1 of the enhanced EJ analysis and the "Communities of Concern" map and methodology, which is anticipated to occur in November or December. Phase 2 will analyze the CLRP for disproportionate impacts on the "Communities of Concern" and will begin in November with initial results expected to be presented to the Technical Committee in February or March 2017.

The Planning Directors Technical Advisory Committee was briefed on September 16, 2016 on the methodology and resulting "Communities of Concern" map, shown in Figure 5. This briefing to the local land-use planning directors' committee as a whole followed a series of staff level consultation in the District of Columbia, Montgomery County, Prince George's County, and Fairfax County. The staff level consultation with select jurisdictions was intended to solicit feedback on the technical methods being proposed for the Phase 1 analysis. In general, the planning directors have endorsed the technical process being used to identify "Communities of Concern" with a recommendation for weighting the low-income demographic factor.

The Technical Committee is being asked to provide feedback on the methodology and map for "Communities of Concern". Comments are due by October 21 and can be emailed to Wendy Klancher on the TPB staff at wklancher@mwcog.org. To facilitate the review, maps and tables of the proposed "Communities of Concern" for each TPB member jurisdiction have been created and are posted at http://old.mwcog.org/clrp/performance/EJ/EJ_CoC.asp.

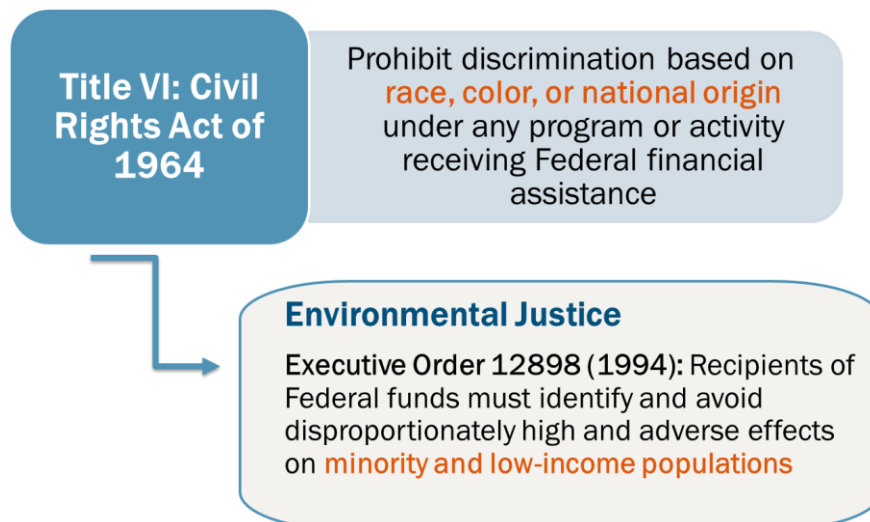## TITLE VI AND ENVIRONMENTAL JUSTICE REQUIREMENTS FOR ANALYSIS OF THE CLRP

The CLRP must be analyzed to identify if the planned transportation improvements as a whole have a disproportionately high and adverse impacts on low-income and minority populations. The legal basis for this requirement comes from Title VI of the 1964 Civil Rights Act, which states that *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."* As shown in Figure 1., Executive Order 12898 on Environmental Justice issued in 1994 more specifically requires recipients of federal funds to identify and address *"disproportionately high and adverse human health and environmental effects, including social and economic effects, of their programs, policies and activities on minority populations and low-income populations."*

"Environmental Justice" refers to "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of .... laws, regulations, and policies" as defined by the U.S. Environmental Protection Agency (EPA).

While the federal requirements are not prescriptive in how MPOs conduct an EJ analysis, the U.S. Department of Transportation (DOT) guidelines require that the following elements are included:

1. A regional demographic profile of low-income populations and minority populations;
2. Mapping of transportation improvements expected to be built over the horizon of the CLRP with the geographic locations of these populations;
3. Identification of benefits and burdens of the CLRP over the horizon of the plan; and
4. Determination of any disproportionate and adverse impact on low-income populations and minority populations based on these benefits and burdens.

Figure 1: Relationship Between Title VI and Environmental Justice

Title VI: Civil Rights Act of 1964

Prohibit discrimination based on race, color, or national origin under any program or activity receiving Federal financial assistance

Environmental Justice

Executive Order 12898 (1994): Recipients of Federal funds must identify and avoid disproportionately high and adverse effects on minority and low-income populations

ENHANCING THE ENVIRONMENTAL JUSTICE (EJ) ANALYSIS OF THE CLRP

The TPB's past approach to the CLRP EJ analysis used a single measure of "accessibility to jobs" by transit and auto between 2010 and 2040. Changes in job accessibility for specific minority and transportation disadvantaged population groups were analyzed and found to be similar across the general population and all minority and disadvantaged population groups. Gains in job accessibility were considered a "benefit" of the plan, whereas job losses in accessibility were considered a "burden". In the 2014 FHWA and FTA certification review of the TPB's planning process, a recommendation was made to encourage the MPO to do additional analysis beyond demographic profiles of "accessibility to job" changes.

The TPB staff conducted a national scan of best practices for EJ analysis by metropolitan planning organizations (MPOs) around the Country. The eight MPO analyses reviewed are: Boston, MA; Philadelphia, PA; Fredericksburg, VA; Baltimore, MD; Houston, TX; Morgantown, WV, Metropolitan Transportation Commission in San Francisco, CA and the Southern California Association of Governments (SCAG). The major finding from the scan was that while the TPB's past approach was typical and compliant with the federal requirements, it could be enhanced. Most MPOs identify "Environmental Justice Areas" ("EJ Areas") which are small geographic areas that have significant concentrations of low-income or minority populations. The EJ areas are then used to analyze potential impacts of the long-range plan by comparing forecast travel measures between "Environmental Justice Areas" and "Non-Environmental Justice Areas". Different names for these areas have been used, including "Communities of Concern" or "Potentially Vulnerable Populations", and various methodologies to define the areas were used. Additionally, while other MPOs also used "accessibility to jobs" as a measure of benefits and burdens of the long-range plan, many used more than one travel or accessibility related-measure to identify benefits or burdens from the long -range plan.

The TPB's proposed enhancements to the EJ analysis draws from the findings of the national scan. The first new element, which constitutes Phase 1, is the identification of the "Communities of Concern", and is the subject of this memorandum. The "Communities of Concern" will also be used in other TPB and COG planning activities. The second new element which is part of Phase 2 will examine multiple travel and accessibility measures to determine if the 2016 CLRP produces disproportionate impacts on the "Communities of Concern" in 2040. New accessibility measures include "accessibility to educational institutions and hospitals", and a new travel measure is the "average travel time". Another important new element is the examination of changes in the accessibility and travel measures between the assumed planned build of the CLRP and a "no-build" scenario.

PHASE 1: IDENTIFICATION OF "COMMUNITIES OF CONCERN"

TPB staff developed and tested different methodologies to identify "Communities of Concern" based on demographic data from the U.S. Census 2010-2014 American Community Survey at the tract-level. The resulting map is shown in Figure 5 on the last page of this memorandum. Four population groups were used in the methodology:

- Low Income;
- African American;
- Asian American; and
- Hispanic or Latino.

Figure 2 shows that 14 percent of the region's population are low-income, 26 percent African-American, 10 percent Asian, and 15 percent Hispanic or Latino. Only 2.9 percent of the region are Two or more races. 11 percent report limited English proficiency, meaning that they speak English less than very well. 8 percent are people with disabilities, and 11 percent are age 65 or older. These figures are from the U.S. Census; American Community Survey, 2010 to 2014 5-Year Estimates.

Definitions for Population Groups

Low-Income: Individuals with household income less than one- and- a- half times the federal government's official poverty threshold, depending on household size. For a household with four people, the federal poverty threshold is an annual income of $24,230. In the current analysis, a household of four people with an annual income less than $36,346 would be considered low-income.
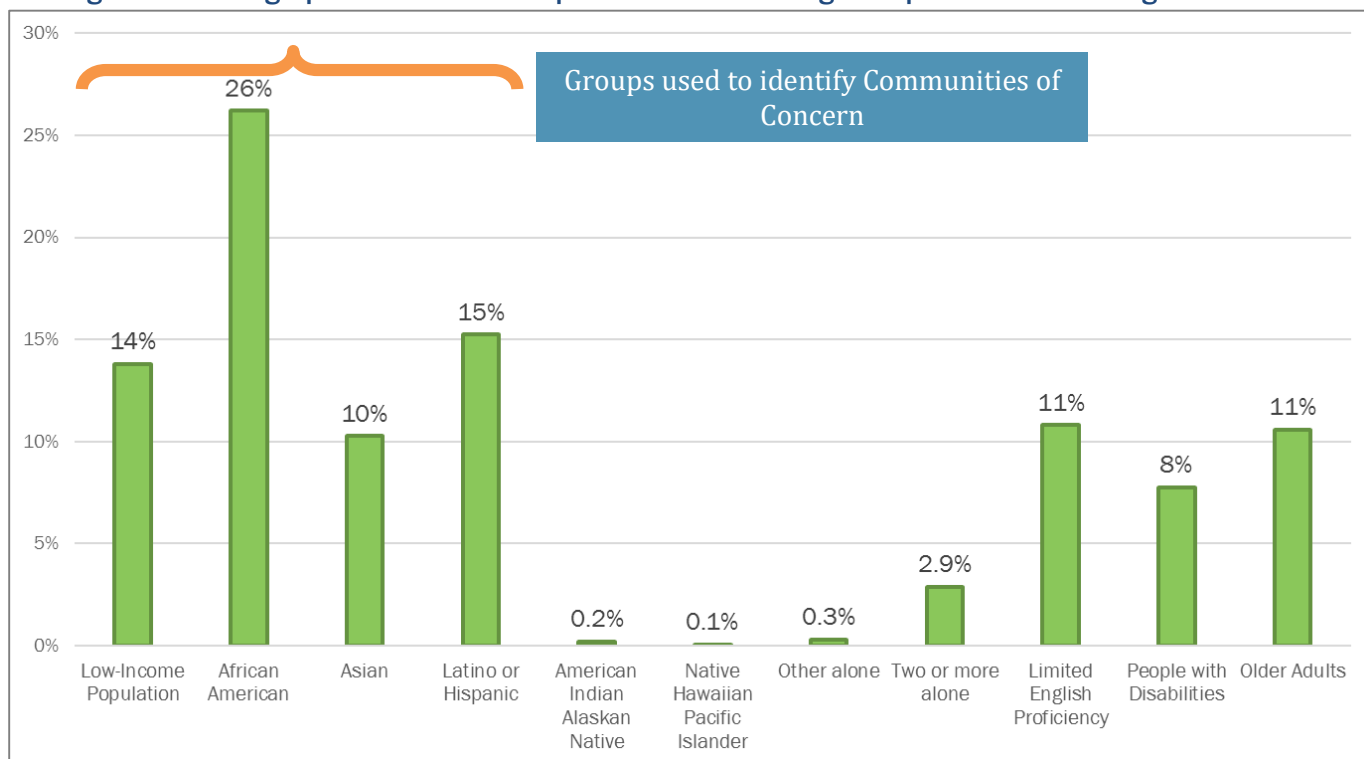
African American*: A person having origins in any of the Black racial groups of Africa.

Asian*: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent.

Hispanic or Latino*: a person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin regardless of race.

*Definitions are from the U.S. Census.

Figure 2: Demographic Profile of Transportation Disadvantaged Populations in the Region

Groups used to identify Communities of Concern

Low-Income Population	African American	Asian	Latino or Hispanic	American Indian Alaskan Native	Native Hawaiian Pacific Islander	Other alone	Two or more alone	Limited English Proficiency	People with Disabilities	Older Adults
14%	26%	10%	15%	0.2%	0.1%	0.3%	2.9%	11%	8%	11%

Source: U.S. Census; American Community Survey, 2010 to 2014 5-Year Estimates. Population categories are not discrete and therefore do not total 100 percent.

Detailed Steps for Identifying "Communities of Concern"

Each of the 1,231 Census tracts in the TPB planning area were analyzed using the following steps to determine which would be considered a "Community of Concern".

Step 1: Determine the percentage of every Census tract's population for each of the four groups:
Low-Income, African American, Asian and Hispanic or Latino. Table 2 shows that Tract 28.01 in the D.C. is 30.88 percent low-income, 37.51 percent African-American, 3.64 percent Asian and 40.02 percent Hispanic or Latino.

Step 2: Calculate the "Ratio of Concentration" for each group in every Census tract.
A "Ratio of Concentration" was calculated for each of the four groups listed above in every Census tract. The "Ratio of Concentration" is the tract-level percentage divided by the total regional percentage and can also be considered "times the regional average". Continuing with the example in Tract 28.01 shown in Table 2, the Ratio of Concentration for the low-income population is 2.24 (or 2.24 times the regional average), 1.43 for the African-American population, 0.36 for the Asian population and 2.63 for the Hispanic or Latino population. Both the regional averages for the four population groups, and the maximum and minimum Ratio of Concentrations found in the region are provided in Table 1 below.

Table 1: Regional Averages and Maximum and Minimum Ratios of Concentrations

	Regional Average	Tract-Level Ratio of Concentration (times regional average)		
		Min	Max	Average
Low-Income	14%	0.00	7.27	1.05
African American	26%	0.00	3.82	1.07
Asian American	10%	0.00	5.89	0.93
Hispanic or Latino	15%	0.00	5.84	0.93

Step 3: Use Index Scoring to designate Communities of Concern: any tract with high concentration of low-income populations and more than one minority group.

An Index Score was calculated based on each groups' Ratio of Concentration to normalize and compare results across the four groups.

Figure 2 shows the rules for determining the index score based on the Ratio of Concentration. Tracts must have at least one-and-a-half times the regional average, or a Ratio of Concentration of at least 1.5, of any one population group in order to be considered a "Community of concern".

The Index Scores for the four groups are summed for a Total Index Score to reach an uncapped Total Index Score ranging from 0 to 15. Tracts with a Total Index Score greater than 3.0 identified as "Communities of Concern". A greater weight was placed on low-income populations in the methodology because income is a predominate demographic factor in the ability to access transportation. Tracts with low-income concentrations greater than one-and-a-half times the regional average received a doubled Index Score, which was capped at 6.00. This weighting ensures all tracts with a concentration of low-income populations are considered Communities of Concern.

Table 2 below shows how the methodology is applied for Tract 28.01 located in D.C. and Figure 3 uses a flow chart to show the same information for Tract 8038.01 in Prince George's County.

Figure 2: Rules for Determining Index Scores Based on the Ratio of Concentration

RATIO OF CONCENTRATION (times regional average)	INDEX SCORE
Less than 1.5	Zero
Between 1.5 and 3.0	Low Income: Score **twice** the Ratio of Concentration*
	Minority: Score **equal** to Ratio of Concentration
Greater than 3.0	Low Income: Score **twice** the Ratio of Concentration capped at **6.0**
	Minority: Capped at **3.0**

* Higher index score ensures that low-income criteria alone identify tracts as Communities of Concern.

## Table 2: Scoring Example for Tract 28.01 in the District of Columbia

		Low-Income	African American	Asian	Hispanic or Latino
Tract: 28.01	Tract Percent	30.88%	37.51%	3.64%	40.02%
	Regional Average	13.80%	26.20%	10.26%	15.24%
	Ratio of Concentration *(times Regional Average)*	2.24	1.43	0.36	2.63
	Index Score	4.48	0.00	0.00	2.63
	Total Index:	7.10			

Figure 3: Flow Chart of Scoring Example for Tract 8038.01 in Prince George's County, MD

☑ **Community of Concern** (Total Index > 3.00)
☐ Not a Community of Concern (Total Index ≤ 3.00)
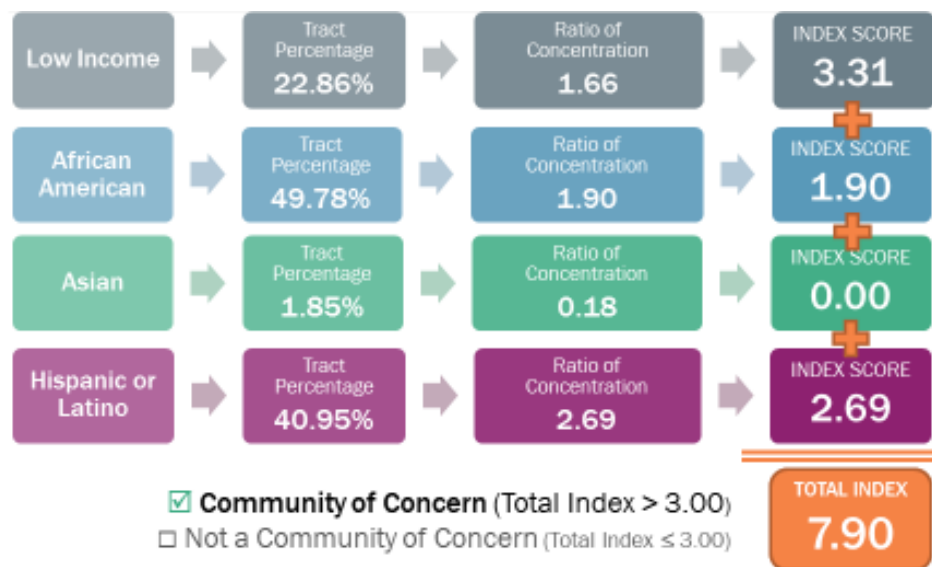
The methodology used identified 27 percent of the 1,231 tracts in the region as Communities of Concern. Figure 4 below shows that the that percentage of transportation-disadvantaged populations in the "Communities of Concern" exceed the regional average for these groups. The "Communities of Concern" account for 52 percent of the Low-Income population, 40 percent of African Americans, 22 percent of Asian population in the region, and 44 percent of Hispanic or Latino population.

Figure 4: Percent of Transportation-Disadvantaged Populations in "Communities of Concern" Compared with Regional Percentages
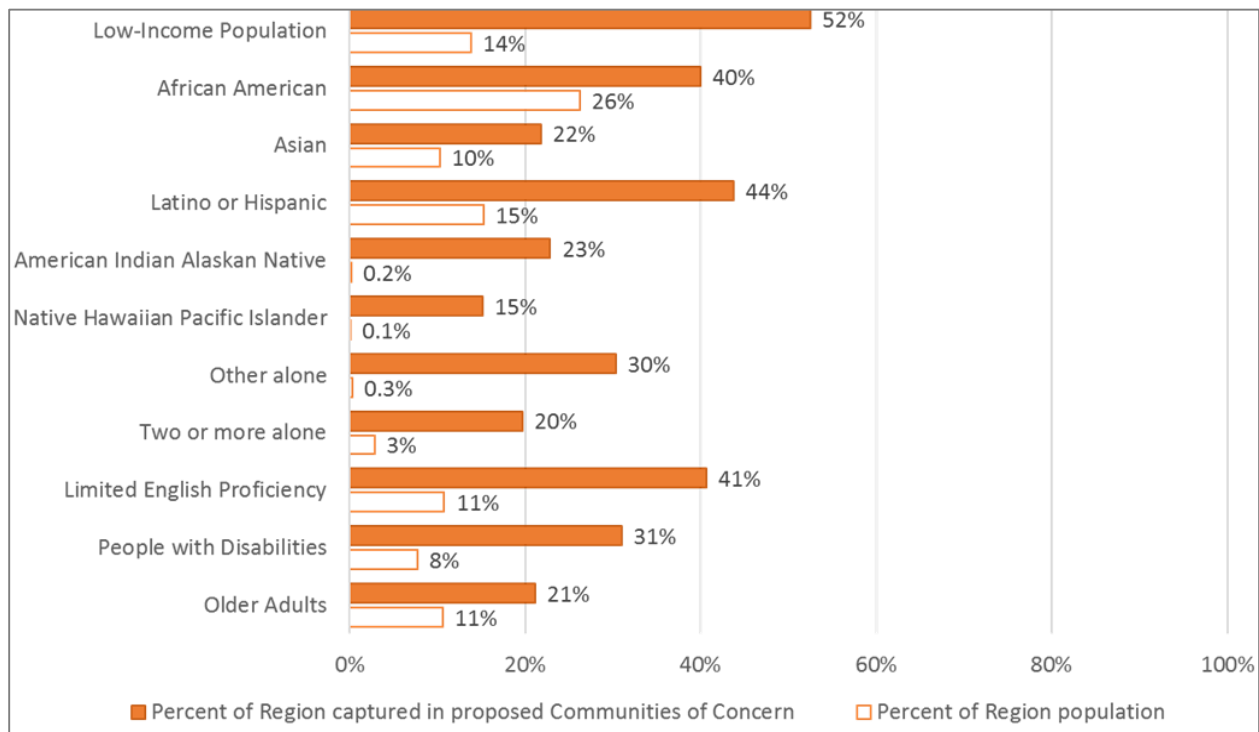
Source: U.S. Census; American Community Survey, 2010 to 2014 5-Year Estimates. Population categories are not discrete and therefore do not total 100 percent

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Online Interactive Map

To facilitate the review of the Communities of Concern, TPB staff created an interactive on-line map of the Communities of Concern and is available at https://gis.mwcog.org/webmaps/tpb/clrp/ej; the Username is "tpbreview" and the password (case sensitive) is "Review.me". Figure 5 shows the Communities of Concern in the region, but maps and tables for each TPB member jurisdiction have also been created and are posted at http://old.mwcog.org/clrp/performance/EJ/EJ_CoC.asp

This interactive map is an important element of the EJ analysis, and allows users to view not only the "Communities of Concern", but also the scoring results and geographic concentrations for the four population groups used in the methodology: Low-Income, African-American, Asian, and Hispanic and Latino. Individual layers of this demographic spatial information may be turned on or off via the check boxes next to each layer on the 'contents' tab. Other layers include the 2015 CLRP transportation improvements and the Activity Centers. The map will be revised to show the

transportation improvements in the 2016 CLRP amendment. To view spatial relationships between the transportation improvements and any of the demographic information, the layers can be made transparent using a slider tool in the map legend. Users can click on any of the "Communities of Concern" Census tracts to view the Ratios of Concentration for each population group as well as the total Index score.

Vetting the Communities of Concern

TPB staff vetted the methodology and map with local jurisdictional land-use planners in D.C., Montgomery County, Prince George's County and Fairfax County between May and August to ensure that that the "Communities of Concern" made sense to these experts with the most knowledge on local demographic patterns. The feedback from these meetings affirmed the methodology and map and there was overwhelming support to place more emphasis on low-income populations. Therefore, the methodology was revised to weight tracts with at least 1.5 times the regional average of low-income populations and the resulting higher index score ensures that low-income criteria alone identifies tracts as Communities of Concern. The revised methodology is described above.

The Planning Directors Technical Advisory Committee was then briefed on September 16, 2016 on the methodology and resulting "Communities of Concern" map. The committee had questions about the methodology but had no major concerns to date; comments are due from the Planning Directors Committee by October 7, 2016.

Phase 1 of the enhanced EJ analysis of the CLRP will conclude after the TPB concurs with the "Communities of Concern" which is anticipated to occur in November or December 2016. The "Communities of Concern" will be used in other TPB and COG planning activities, and can be tailored by local jurisdictions for their purposes.

PHASE 2: EXAMINE THE CLRP FOR DISPROPORTIONATE IMPACTS ON "COMMUNITIES OF CONCERN"

TPB staff will undertake Phase 2 of the project in November and begin to analyze the 2016 CLRP amendment for disproportionate impacts on the "Communities of Concern" in 2040. Individual projects will not be analyzed, rather the regional transportation system will be analyzed as a whole.

As stated earlier, the Phase 2 analysis will examine additional transportation measures, and the forecast changes in "accessibility" and travel time by automobile and transit will be compared for Communities of Concern versus the rest of the region between 2016 and 2040 based on the CLRP performance as a whole ("Planned Build"). A new element of the analysis will include the examination of the Planned Build versus a "No Build" in which none of transportation improvements in the CLRP are assumed to be built. The importance of this new element is that the "No-Build" will inform what effects land use changes based on the Cooperative Forecast for households and jobs will have on travel patterns in 2040.

The transportation measures that will be used to define "benefits" and "burdens" of the CLRP include changes in "accessibility" within 45 minutes" by automobile and transit to all jobs, retail jobs (as a proxy for entry-level jobs), educational institutions and hospitals. Another measure will be travel time to work by automobile and transit. The "benefits" of the CLRP within this approach are therefore increases in accessibility to jobs, hospitals and educational institutions, and decreases in travel time between 2016 and 2040. The "burdens" are the reverse: decreases in accessibility to jobs, hospitals and educational institutions and Increases in travel time.

The test for disproportionate impact of the CLRP will be whether the "benefits" and "burdens" are found to be evenly distributed between the "Communities of Concern" and the rest of the region.

The EJ analysis of the CLRP would be conducted for the 2016 CLRP amendment, and then for every major plan update (the next one is the 2018 CLRP).

Limitations of the Analysis

The EJ analysis is limited by the available tools and data. The U.S. Census has changed its survey methodology in recent years, making data collection and comparison over time more challenging. American Community Survey data are 5-year estimates based on small sample sizes, and accuracy at small level geography becomes even more uncertain.

It should also be noted that the U.S. Census provides imperfect data on minorities and disability status. Minority racial groups tend to be undercounted relative to the general population. This means that Census data may underestimate the relative size of minority groups in the Washington region. The number of individuals with disabilities may also be underestimated, because the Census relies on self-reports of disability status and some individuals may be reluctant to identify themselves as having a disability.

Furthermore, the prevalence and location of minority and disadvantaged groups in the year 2040 is not known. It is likely that changes in land use, housing prices, and migration patterns will alter the demographic profile of the region by 2040. Since is it impossible to accurately predict where these changes will happen, the current geographic distributions are assumed to remain constant through 2040.

NEXT STEPS

As stated earlier, Phase 1 will be completed when the TPB concurs with the "Communities of Concern", anticipated for November or December 2016, after that Planning Director and Technical Committee have the opportunity to comment on the methodology and map. Comments can be sent to Wendy Klancher at wklancher@mwcog.org and are due by October 21.

Phase 2, the analysis for disproportionate impacts on the "Communities of Concern", will begin in November 2016 with initial results expected to be presented to the Technical Committee in February or March 2017.

Figure 5: Proposed Communities of Concern in the National Capital Region

Legend

Communities of Environmental Justice Concern *Tracts with an Index Score greater than 3.00*

0   3.5   7   14   21   28
Miles

Communities of Environmental Justice Concern are defined as tracts with a significant concentration of low-income and minority populations. Please see methodology for a detailed description.

Source: U.S. Census. 2010-2014 American Community Survey. 5-Year Estimates. Analysis by Transportation Planning Board Staff.