Appendix B
Task 2 Technical Memorandum: Best Practices in CIPs

Contents

INTRODUCTION

PURPOSE OF STUDY

Local governments in the Baltimore Metropolitan Council (BMC) region are responsible for managing much of the transportation infrastructure the public relies on every day, from streets and sidewalks to public transportation. Capital Improvement Programs (CIPs) determine how limited capital funds are allocated for the maintenance and expansion of this infrastructure. While BMC's member jurisdictions each have their own approaches to developing CIPs, capital improvement plans at their most basic fulfill four functions:

1. **Inventory**: What are the capital needs?
2. **Prioritization**: Which projects take precedence?
3. **Funding**: What fiscal resources are available to support capital investments?
4. **Programming**: How are funds being distributed among capital needs? Which capital needs are being met and which ones remain unfunded?

These functions may be accomplished through formal or informal processes. There are a wide range of factors that impact CIPs, from laws and budgets to citizen input and policies. This report provides an overview of best practices in CIP development, considering the specific questions members of the BMC region asked about CIP development during the interview phase of this project.

METHODOLOGY AND OVERVIEW OF SOURCES

The literature review included materials from:

- The American Planning Association (APA);
- The American Association of State Highway and Transportation Officials (AASHTO);
- The American Road and Transportation Builders association (ARTBA);
- The Association of Metropolitan Planning Organizations (AMPO);
- The National Association of Counties (NACO);
- The International City/County Management Association (ICMA):
- The Government Finance Officers Association (GFOA):
- The National Cooperative Highway Research Program (NCHRP); and
- The Transit Cooperative Research Program (TCRP).

In addition, keyword searches were conducted through the Transportation Research International Documentation (TRID) database and general web searches. Upon an initial literature scan, the study team documented relevant literature findings. These findings have been organized by theme in the sections that follow.

KEY THEMES

RULES AND REGULATIONS

Several sources highlight the role existing rules and regulations have in guiding the local CIP development process. These included city charters, county codes, state statutes, and federal regulations, as well as existing and in-progress plans that guide long-term planning and development processes. Some examples of how city charters or county codes may impact CIPs include defining what can be considered as a capital improvement; documenting what levels of debt are acceptable; or stipulating other criteria such as requiring adequate levels of service for new capital investments and quantifying those levels. In Austin, the city charter requires the CIP and land development code are consistent with the comprehensive plan.[1] The CIP can be used to make improvements to meet state or federal requirements, such as accessible facilities for individuals with disabilities or reducing the teacher pupil ratios at local schools. The CIP may also impact a jurisdiction's ability to receive state and federal grants or other funding if a project is shovel-ready and just needs to secure funds.

The APA highlights the importance of aligning long-range plans (such as comprehensive plans, which have an outlook of 20 to 50 years) to the capital improvement budget while noting that these processes often occur independently from each other at the local level.[2] A case study highlights how the Imagine Austin Comprehensive Plan (Austin 2012) incorporated comprehensive planning into the CIP process by creating a Capital Planning Office to integrate the two.[3] The GFOA recommends that master plans should "provide a vision for capital project plans and investments."[4]

Austin, Texas created a Capital Planning Office that worked to align the CIP with overarching planning goals and to manage the portfolio of capital projects.

The literature also recommends that jurisdictions establish a framework or policy for the CIP process. **Figure 1** synthesizes findings from local guidance published for communities in Massachusetts, Michigan, and Utah on developing such a framework.[5,6,7]

1 American Planning Association, Integrating Capital Improvements Planning with the Comprehensive Plan (membership required to access), https://www.planning.org/pas/memo/2018/sep/
2 American Planning Association, Planning for Infrastructure Resilience (membership required to access), https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/PAS-Report-596-rev-2.pdf
3 American Planning Association, Integrating Capital Improvements Planning with the Comprehensive Plan (membership required to access), https://www.planning.org/pas/memo/2018/sep/
4 GFOA, Master Plans and Capital Improvement Planning, https://www.gfoa.org/materials/master-plans-and-capital-improvement-planning
5 Division of Local Services Massachusetts Department of Revenue, Capital Improvement Planning Guide, https://www.wnewbury.org/sites/g/files/vyhlif1436/f/uploads/2016capital_improvement_planning_guide-dls.pdf
6 Redevelopment Ready Communities, Capital Improvements Plan Guide, https://www.miplace.org/496784/globalassets/documents/rrc/rrc-guide-cip.pdf
7 Workforce Services, An Introduction for Local Leaders: Capital Improvement Planning, pg. 5, https://www.ruralplanning.org/assets/capital-improvement-planning-web.pdf

Figure 1: Components for Establishing a CIP Process

Adopt By-law and Establish Committee

- Draft and pass necessary legislation to establish guiding committee and enable the CIP process.

Establish Process Timelines

- Determine a realistic schedule for completing the CIP process from start to finish.

Document Criteria for Prioritization

- Establish a transparent list that clearly outlines how capital projects will be prioritized.

Identify Roles

- Determine which actors/committees will be involved the process and their roles

Inventory Existing Assets

- Develop complete list of all properties, assets, and vehicles.
- May also include roadways and other infrastructure such as sewers.
- Document basic information about the condition of each asset such as year of construction and condition.

IDENTIFYING NEEDS

Local governments in the Baltimore region used a mix of "top-down" and "bottom-up" approaches to identify needs for inclusion in the CIP. A mix of these approaches was also found in the literature. GFOA recommends considering all capital needs as a whole by incorporating the jurisdiction's fiscal capacity, developing a plan for debt issuance, and the impact on operating budgets and reserves.[8] A beginner's guide to the capital improvement process for local leaders in Utah suggests identifying projects "from resident requests, political campaign promises, response to service deficits, crises and emergencies, regulatory requirements, current asset assessment, and current master plans."[9]

Other methods for identification are department-driven. A guide by the Michigan Economic Development Corporation suggests that department heads complete project application forms that are then ranked by multiple committees,[10] as does another guide for communities in Massachusetts.[11] Project request forms or project charters can be used to prioritize potential projects, develop an inventory of capital needs, and encourage reflection on whether a jurisdiction has the capacity to deliver the project. Requiring the completion of one of these documents asks proposers to think carefully about all aspects of the project, since the forms generally request information about the project scope,

[8] GFOA, Capital Planning Policies, https://www.gfoa.org/materials/capital-planning-policies
[9] Workforce Services, An Introduction for Local Leaders: Capital Improvement Planning, pg. 5, https://www.ruralplanning.org/assets/capital-improvement-planning-web.pdf
[10] Redevelopment Ready Communities, Capital Improvements Plan Guide, https://www.miplace.org/496784/globalassets/documents/rrc/rrc-guide-cip.pdf
[11] Division of Local Services Massachusetts Department of Revenue, Capital Improvement Planning Guide, https://www.wnewbury.org/sites/g/files/vyhlif1436/f/uploads/2016capital_improvement_planning_guide-dls.pdf

justification for the need, operating and capital costs, timelines and milestones, and project management structure.[12] [13]

EQUITY CONSIDERATIONS

Jurisdictions are advancing equity in the capital improvement process through participatory budgeting and other community-driven planning efforts. The City of Philadelphia launched its participatory budgeting initiative in 2020 with the aim of involving the public directly in spending decisions and incorporating racial equity into the decision-making process. As part of the process, Philadelphians will develop ideas on how to spend $1 million in capital projects.[14] While $1 million is a very small portion of the larger budget, the city will also conduct increased public engagement in Black and Brown communities for the general CIP. Denver will follow a similar approach in which community-led committees will develop project proposals for $1.7 million in funding.[15]

Cities in particular are taking the lead on building equity frameworks, policies, and tools for equity in budgeting.[16] Madison, Wisconsin developed a Racial Equity and Social Justice Initiative (RESJI) tool that is used to understand how communities of color and low-income communities may be impacted by proposed changes in policies.[17] Projects such as planning for a new fire station, an analysis of neighborhood trash pickup, and hiring in the city's IT department have all been analyzed using this tool.[18] In San Antonio, Texas, the city's Office of Equity aims to "advance equity in budgeting, community engagement, and high-priority service delivery."[19]

There are also examples of frameworks for measuring and conducting analyses on the equity impacts of capital improvement plans. Denver recently converted its line-item budget to a program-based budget (budget drawn up for individual programs instead of specific expenses) to understand the true cost of providing services. The city added additional data points to this new budget to understand who was being served by these programs and the equity impact of each program.[20] San Antonio developed a Budget for Equity Tool (BET) to evaluate whether budgets "advance equitable outcomes for residents"

[12] University of Wisconsin System, Capital Project Charter, https://www.wisconsin.edu/capital-planning/download/projects(2)/CapitalProjectCharter.docx
[13] US Department of Health and Human Services, Project Charter Template, https://www.hhs.gov/ocio/eplc/EPLC%20Archive%20Documents/03%20-%20Project%20Charter/eplc_project_charter_template.doc
[14] City of Philadelphia, Philadelphia Announces Participatory Budgeting & Other Equitable Budgeting Initiatives to Reduce Racial Disparities and Improve Community Outcomes, https://www.phila.gov/2020-12-01-philadelphia-announces-participatory-budgeting-other-equitable-budgeting-initiatives-to-reduce-racial-disparities-and-improve-community-outcomes/
[15] City of Denver, City Takes First Step Toward Denver's Participatory Budgeting Program, https://www.denvergov.org/content/denvergov/en/denver-department-of-finance/newsroom/2020/city-takes-first-step-toward-denver-s-participatory-budgeting-pr.html
[16] Alliance for Innovation, Racial Equity Budgeting Tools, https://www.transformgov.org/programs-and-projects/racial-equity-budgeting-tools
[17] City of Madison, City Projects Using RESJI Tools, https://www.cityofmadison.com/civil-rights/programs/racial-equity-social-justice-initiative/city-projects-using-resji-tools
[18] ibid.
[19] City of San Antonio, Office of Equity Overview, https://www.sanantonio.gov/Equity/About
[20] University of Illinois Chicago, Budgeting with an Equity Lens, https://gfrc.uic.edu/budgeting-with-an-equity-lens/

using a program-based budgeting approach.[21] The sections of the tool, and the questions to which departments must respond to, are shown in **Figure 2.**[22]

Figure 2: San Antonio BET Sections

BET SECTIONS AND QUESTIONS AT-A-GLANCE
Strategy One: Apply an Equity Lens to Assess Equity Impact
1. In what ways will your overall (entire) budget be realigned for the next fiscal year in targeted ways to advance equity?
2. What are the recurring funding gaps or limitations in your overall budget that could inhibit your Department's ability to advance racial and economic equity?
3. Identify potential impacts of your proposed reductions or fee changes (if applicable) on communities of color and low-income communities, and describe what strategies your Department recommends to mitigate any potential adverse impacts.
Strategy Two: Be Equity Data Driven
4. Indicate the racial and/or economic inequities experienced by San Antonio residents that could be addressed via specific allocations in the Department's overall budget and improvement requests.
5. Within your proposed budget, describe ways in which disaggregated racial and economic data was used to prioritize and develop criteria for resource distribution.
6. What additional disaggregated demographic data will your Department collect, track, and evaluate to assess equity impacts in community moving forward, and inform your future budget decisions?
7. How will your Department use disaggregated racial demographic data to help inform recruitment, retention, and promotion efforts for staff of color, including entry level, part-time, and field staff?
Strategy Three: Equitable Community Engagement and Inclusion
8. How will your proposed budget build the Department's capacity to engage with, and include, communities of color and low-income communities? What are the anticipated positive equity outcomes of these allocations?
9. How will your Department allocate funding towards ensuring that public documents, policies, plans, meetings, and hearings are readily accessible to the public, including translation of documents to Spanish and other languages, and ensuring interpretation services are available to the public in all relevant places and programs (such as service desks, service phone lines, open houses, public meetings, etc.)? What is the anticipated equity impact of this allocation? If tracked as a distinct line item, what dollar amount and percentage of your Department's budget is allocated for translation and interpretation services?
10. How will community members, including communities of color and low-income communities, be consulted to identify programming and/or service needs, and how is this reflected in the proposed budget?

[21] City of San Antonio, Fiscal Year 2022 Budget Equity Tool, https://www.sanantonio.gov/Equity/Initiatives/BudgetEquityTool
[22] City of San Antonio, Fiscal Year 2021 Budget Equity Tool, https://www.sanantonio.gov/Portals/0/Files/Equity/BudgetEquityTool.pdf?ver=2020-04-13-182339-083

Aside from the current state of practice, research conducted on infrastructure inequalities may shed some light into understanding the equity impacts of the built environment. Inequalities in infrastructure can be indicative of larger environmental justice (EJ)[23] concerns and social inequalities.[24] The APA suggests conducting an analysis to determine the social vulnerability of a population by evaluating factors such as socioeconomic status; household composition; age; disability; race/ethnicity/language; housing and transportation.[25] A 2005 article examining transit CIPs and equity proposes a methodology that examines funding ratios in EJ and non-EJ neighborhoods.[26] The methodology first identifies EJ neighborhoods at the Census tract level, maps them in GIS, then spatially allocates the capital budget to Census tracts based on the perceived benefits of projects. This process develops an overall funding ratio between EJ and non-EJ neighborhoods which can be used to analyze CIP fund allocation. In a similar process, Howard County uses BMC's Vulnerable Population Index to track the number of roadway projects occur in priority communities.

Jurisdictions can identify equity populations at the Census tract level, then map and analyze CIP investments.

Federal or state regulations may also impact equity considerations. For example, some federal requirements apply to all levels of government that receive federal funds, such as the Americans with Disabilities Act (ADA) that prevents discrimination on the basis of disability. Jurisdictions may consider how they can include accessible facilities or retrofits into their capital improvement plan. Title VI of the 1964 Civil Rights Act, which prevents discrimination on the basis of race, color, and national origin, is another key federal law whose requirements funding recipients must uphold. An example of how Title VI applies to local jurisdictions is when state highway administrations distribute federal funds, which are subject to Title VI requirements.[27]

Another equity consideration is intergenerational and focuses on whether those paying for an improvement will also benefit from it and vice versa.[28] This should be considered as jurisdictions determine how capital projects should be financed (e.g., debt versus general fund revenue). A report from the National Association of State Budget Officers (NASBO) recommends financing large projects using long-term debt, as these projects also have long lives that those contributing paying for them can

[23] According to the United States Department of Transportation, "Environmental Justice (EJ) is the fair treatment and meaningful involvement of all people, regardless of race, ethnicity, income, national origin, or educational level with respect to the development, implementation and enforcement of environmental laws, regulations and policies." From https://www.transportation.gov/transportation-policy/environmental-justice
[24] American Planning Association, Planning for Infrastructure Resilience (membership required to access), https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/PAS-Report-596-rev-2.pdf
[25] ibid.
[26] Geoffrey Fruin and PS Srijaj, Approach of Environmental Justice to Evaluate the Equitable Distribution of a Transit Capital Improvement Program, https://trid.trb.org/View/775685
[27] FHWA, What is Title VI? https://www.fhwa.dot.gov/civilrights/programs/docs/Title%20VI%20Basics.pdf
[28] National Association of State Budget Officers, Capital Budgeting in the States, https://higherlogicdownload.s3.amazonaws.com/NASBO/9d2d2db1-c943-4f1b-b750-0fca152d64c2/UploadedImages/Reports/Capital%20Budgeting%20in%20the%20States.pdf

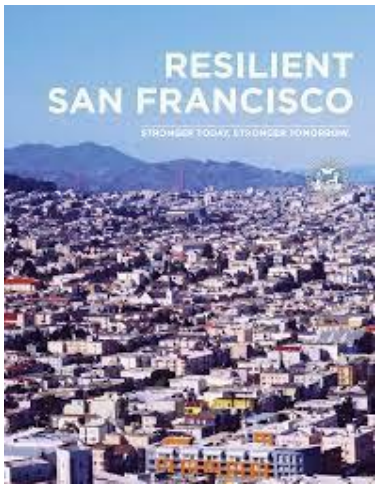
also benefit from.[29] In addition, the Association recommends that funding structures using bonds or other debts should not exceed the life of the asset.

RESILIENCY

Resiliency, like equity, is another consideration that is difficult to quantify. In this instance, "resiliency" refers to how jurisdictions can evaluate the long-term sustainability of their physical infrastructure considering a changing climate and other natural and man-made hazards and mitigate those risks. Part of incorporating resiliency into capital planning requires jurisdictions to account for the lifespan of capital improvements together with their long-term costs and the hazards and risks associated with the physical environment in which these improvements are built.

Resiliency concerns are increasingly being treated as integral to capital planning. In San Francisco, the City's Office of Resilience and Capital Planning is responsible for developing the budget. The Office defines "resilience" as: "The capacity of individuals, communities, institutions, businesses, and systems within the city to survive, adapt, and grow, no matter what kind of chronic stresses and acute shocks they may experience. It is important to note that resilience is a concept that extends beyond preparation for discrete natural disasters and should be defined in connection to issues such as climate change, escalating urbanization, and other disruptions of daily life."[30]

The CIP provides an opportunity to bolster community resilience to natural and man-made hazards.



In its report on planning resilient infrastructure, the APA highlights the role that CIPs can play in community resilience, especially since they guide near- and long-term infrastructure needs.[31] Accordingly, the report recommends using the CIP to build resilience for future floods and other hazards and emphasizes the importance of connecting the CIP to regional, comprehensive, or other plans by linking the goals and objectives of existing plans to the CIP. Similarly, Planning for Hazard's Capital Improvement Plan guidance highlights the benefits of integrating hazard mitigation into CIPs. According to the Colorado Department of Local Affairs led-group, incorporating hazard mitigation projects into CIPs helps leverage funding to implement hazard mitigation; ensures that public expenditures for capital improvements are consistent with hazard mitigation goals, objectives, and policies; provides an opportunity to review and consider the impact of proposed improvements on hazard vulnerability; and

[29] National Association of State Budget Officers, Capital Budgeting in the States, https://higherlogicdownload.s3.amazonaws.com/NASBO/9d2d2db1-c943-4f1b-b750-0fca152d64c2/UploadedImages/Reports/Capital%20Budgeting%20in%20the%20States.pdf
[30] San Francisco Office of Resilience and Capital Planning, What we do, https://onesanfrancisco.org/about/what-we-do
[31] American Planning Association, Planning for Infrastructure Resilience (membership required to access), https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/PAS-Report-596-rev-2.pdf

helps guide new growth to safer areas.[32] While these actions help reduce a jurisdiction's risk, prioritizing mitigation investments may come at the expense of allocating spending to more immediate needs (such as maintenance backlogs).

UNCONSTRAINED CAPITAL PLANNING

In a perfect world, all capital projects evaluated and prioritized during the development of a CIP would be funded; however, jurisdictions typically have more capital needs than there is funding available. Based on the information provided in the interviews, most jurisdictions within the BMC region maintain a list of all projects submitted each year, but do not have a formal method for tracking unfunded projects. Maintaining a list of unfunded projects is valuable for multiple reasons. First, it provides a starting point for developing future year CIPs. Second, it helps set a funding goal and communicate a community's capital backlog.

The literature does not provide a great deal of guidance on how to track unfunded projects; however, examples from practice can be useful. For example, the San Francisco Municipal Transportation Agency (SFMTA) develops an unconstrained 20-Year Capital Plan, which serves as an assessment of SFMTA's expected capital needs over the coming 20 years. This document is used as a guide for developing SFMTA's fiscally constrained CIP annually. While the 20-Year Capital Plan is not updated every year, it serves, in essence, as a clearing house for all potential capital projects for SFMTA, allowing the agency to keep track of projects that may not have been funded in the CIP.[33] Another approach is to publish both a fiscally constrained and fiscally unconstrained CIP each year. To track unfunded projects, New Jersey Transit, for example, publishes an unconstrained financial summary as part of its CIP. For New Jersey Transit, this unconstrained summary is used to help prioritize capital projects in future constrained plans and is seen as an aspirational document.[34] Technology can also be useful for tracking unfunded projects. While publicly accessible data portals could show which projects are not funded in a CIP, internal databases can also be used to track projects.

ASSET MANAGEMENT

BMC jurisdictions explained the challenge of balancing expansion with asset preservation. Jurisdictions may need to expand their physical infrastructure – but capital asset expansion will lead to new maintenance needs to be incorporated into a larger maintenance backlog. Capital plans should capture anticipated future maintenance needs and operation costs associated with new investments.[35]

Manual spreadsheet tracking methods as well as software help jurisdictions manage assets.

[32] Planning for Hazards, Integrating Hazard Mitigation into Capital Improvement Plans, https://www.planningforhazards.com/capital-improvement-plan
[33] San Francisco Municipal Transportation Agency, 2019 SFMTA 20 Year Capital Needs Update, https://www.sfmta.com/reports/2019-sfmta-20-year-capital-needs-update
[34] New Jersey Transit, Capital Plan, https://njtplans.com/downloads.html#capital-plan
[35] GFOA, Capital Planning Policies, Capital Planning Policies, https://www.gfoa.org/materials/capital-planning-policies

TCRP Report 157 focuses on approaches for transit agencies to evaluate and prioritize rehabilitation and replacement of existing capital assets.[36] The report includes a framework that transit agencies can use to prioritize capital asset rehabilitation and includes four spreadsheet-based tools to carry out the framework. These spreadsheet tools include a prioritization modeling tool, a vehicle modeling tool, an age-based modeling tool, and a condition-based modeling tool. TCRP Report 172 builds off TCRP Report 157 and provides tools and guidance to improve asset management at transit agencies.[37] While transit agencies deal with a more narrowly defined set of capital and system preservation needs than jurisdictions, similar condition-based modelling could be applied to the range of physical infrastructure managed by jurisdictions.

Aside from manual tracking using spreadsheets, Enterprise Asset Management (EAM) software – such as Maximo or Infor – is available to help jurisdictions track and manage their assets and support the entire capital planning process in one, central solution. Jurisdictions can use EAM software to create an inventory of and track all assets and asset conditions, including maintenance and improvements made to existing assets. The software can also be used to forecast future capital needs and expenditures based on age or asset condition. [38] The data exported from these systems can be used to guide capital planning by providing a picture of the labor hours and the cost of maintaining the assets.

Asset management can shape a jurisdiction's capital improvement plan. Jurisdictions may prioritize projects that maintain existing assets such as roads and bridges, according to age, condition, or inspection results. The City of Seattle defines asset management as, "getting the best results of performance for the preservation, improvement, and operation of infrastructure assets given the resources available."[39] Seattle's financial planning accounts for full life-cycle costing and its capital improvement plan projects are based on critical asset needs, condition, and levels of service.[40] San Diego uses an EAM workflow that integrates GIS and financial information for asset-based analysis and prioritization to fund aging assets and its maintenance backlog.[41]

[36] National Academies of Sciences, Engineering, and Medicine, TCRP 157, State of Good Repair: Prioritizing the Rehabilitation and Replacement of Existing Capital Assets and Evaluating the Implications for Transit, http://www.trb.org/Publications/Blurbs/167637.aspx
[37] National Academies of Sciences, Engineering, and Medicine, TCRP 172, Guidance for Developing a Transit Asset Management Plan, http://www.trb.org/Publications/Blurbs/171285.aspx
[38] Agile Assets, Home page, https://www.agileassets.com/
[39] City of Seattle, Asset and Performance Management, https://www.seattle.gov/transportation/about-us/asset-management
[40] ibid.
[41] City of San Diego, Enterprise Asset Management (EAM) Project, https://www.sandiego.gov/sites/default/files/legacy/fm/pdf/memoranda/2016/budrefresp051315att1.pdf

Key Takeaways: Identifying Needs

- Literature suggests relying on a range of sources to identify capital needs, including: from resident requests, public policy priorities, response to service deficits, crises and emergencies, regulatory requirements, current asset assessment, and plans.
- Jurisdictions can benefit from developing fiscally unconstrained inventories of capital needs to ensure they fully understand their capital investment needs.
- Resiliency and state of good repair are important considerations when identifying capital needs. Properly accounting for these types of projects can reduce risk and long-term costs.

PRIORITIZING NEEDS

Jurisdictions often make tough decisions regarding what capital needs get funded and which ones do not. Having a prioritization mechanism helps communities make equitable, defensible, and objective funding decisions. Broadly speaking, evaluation and prioritization criteria should be reflective of community needs and be general enough that they can remain in place despite changing political climates. A systematic approach to prioritization that is guided by specific criteria can protect decision-makers from accusations of favoritism and help ensure decisions are based on measurable criteria rather than personal preference. To ensure fairness, project prioritization criteria should be developed with input from a variety of viewpoints and perspectives.[42] In addition to using existing policy priorities to help guide CIP evaluation and prioritization efforts, the GFOA recommends aligning capital investment decisions with long-range master pans, comprehensive plans, strategic plans, and organization goals and objectives. As such, a CIP serves as a financial guide that helps prioritize the needs identified in a master plan.[43]

The literature suggests that prioritization criteria can link capital projects with program objectives or to performance measures, and weighting can be used to emphasize some criteria over others.[44] It can also be beneficial for jurisdictions to use quantifiable metrics, which can be tied to performance measures, to drive prioritization in the CIP process. For example, a jurisdiction may prioritize based on a metric such as the number of users that benefit from a capital investment or the economic impact of a capital investment. For example, Seattle DOT prioritizes pavement preservation and restoration work by conducting a benefit/cost analysis on street segments that need repair. For this

Evaluation and prioritization criteria can be linked to performance measures and the priorities included in long-range plans.

[42] Workforce Services, An Introduction for Local Leaders: Capital Improvement Planning, https://www.ruralplanning.org/assets/capital-improvement-planning-web.pdf
[43] GFOA, Master Plans and Capital Improvement Planning, https://www.gfoa.org/materials/master-plans-and-capital-improvement-planning
[44] National Association of State Budget Officers, Capital Budgeting in the States, https://higherlogicdownload.s3.amazonaws.com/NASBO/9d2d2db1-c943-4f1b-b750-0fca152d64c2/UploadedImages/Reports/Capital%20Budgeting%20in%20the%20States.pdf

analysis, Seattle DOT estimates the cost of deteriorated pavement conditions to road users and the cost of the treatment to repair the road. The DOT then compares the two values to understand the cost and benefit of repairing a road segment.[45]

Figure 3 presents sample evaluation criteria. In this example, criteria is based around key themes that are applicable to multiple areas of government. The weighting shows how, based on local priorities, a jurisdiction can use prioritization to highlight some needs over others.

Figure 3: Sample CIP Score Sheet (Redevelopment Ready Communities)[46]

2020–2025 CAPITAL IMPROVEMENT NEEDS ASSESSMENT FORM				
Project name: Department:	Project # Total score:			
RATER NAME:	**Score Range**	**Rater Score**	**Weight**	**Total Points**
CONTRIBUTES TO HEALTH, SAFETY AND WELFARE				
Eliminates a known hazard (accident history)	5		5	
Eliminates a potential hazard	4			
Materially contributes	3			
Minimally contributes	1			
No Impact	0			
PROJECT NEEDED TO COMPLY WITH LOCAL, STATE OR FEDERAL LAW				
Yes	5		5	
No	0			
PROJECT CONFORMS TO ADOPTED PROGRAM, POLICY OR PLAN				
Project is consistent with adopted city council policy or plan	5		4	
Project is consistent with administrative policy	3			
No policy/plan in place	0			
PROJECT REMEDIATES AN EXISTING OR PROJECTED DEFICIENCY				
Completely remedy problem	5		3	
Partially remedy problem	3			
No	0			
WILL PROJECT UPGRADE FACILITIES				
Rehabilitates/upgrades existing facility	5		3	
Replaces existing facility	3			
New facility	1			
CONTRIBUTES TO LONG-TERM NEEDS OF COMMUNITY				
More than 30 years	5		2	
21 - 30 years	4			
11 - 20 years	3			
4 - 10 years	2			
3 years or less	1			
SERVICE AREA OF PROJECT				
Regional	5		2	
City-wide	4			
Several neighborhoods	3			
One neighborhood or less	1			
DEPARTMENT PRIORITY				
High	5		2	
Medium	3			
Low	1			
PROJECT DELIVERS LEVEL OF SERVICE DESIRED BY COMMUNITY				
High	5		2	
Medium	3			
Low	1			

[45] Seattle Department of Transportation, Asset & Performance Management, https://www.seattle.gov/transportation/about-us/asset-management

[46] Redevelopment Ready Communities, Capital Improvement Plan Guide, https://www.miplace.org/496784/globalassets/documents/rrc/rrc-guide-cip.pdf

INCORPORATING EQUITY INTO PRIORITIZATION

Factors such as equity can be incorporated into prioritization measures. Krapp et. al in *Equity-oriented Criteria for Project Prioritization in Regional Transportation Planning* highlights six methods used to incorporate equity into the development of transportation improvement programs (TIPs).[47].

- **Location burdens-based**, which considers the location of a project within equity communities as detrimental for them. Projects are awarded points if it is not located within an equity community or if measures to mitigate harm are included.
- **Location benefits-based**, which considers the proximity of a project to equity communities as beneficial. Projects are awarded points if they are located within or adjacent to an equity community.
- **Impacts-based**, which evaluates both the potential benefits and burdens a project will have on equity communities. Projects are awarded more points if it will bring about benefits and fewer points if it will bring about burdens.
- **Access to destinations-based**, which considers accessibility improvements that a project may provide an equity community. Projects are awarded more points if it can increase access to key destinations.
- **User-based**, which considers who will use a project. A project is a awarded more points if more people from equity communities use the facility.
- **Community-engagement based**, which considers how project sponsors involved equity communities before and during a project's development. Projects with more stakeholder engagement are awarded more points.

While this research refers specifically to MPOs, the findings can also inform the application of equity in jurisdiction-level capital planning.

Most of the methodologies require only geographic and demographic data and are flexible enough that an MPO can make the evaluation more or less intensive based on its own priorities and/or capacity.[48] Within the BMC region, for example, Howard County uses a location benefits-based approach to help prioritize complete streets projects in equity communities, as defined by BMC's Vulnerable Population Index.[49]

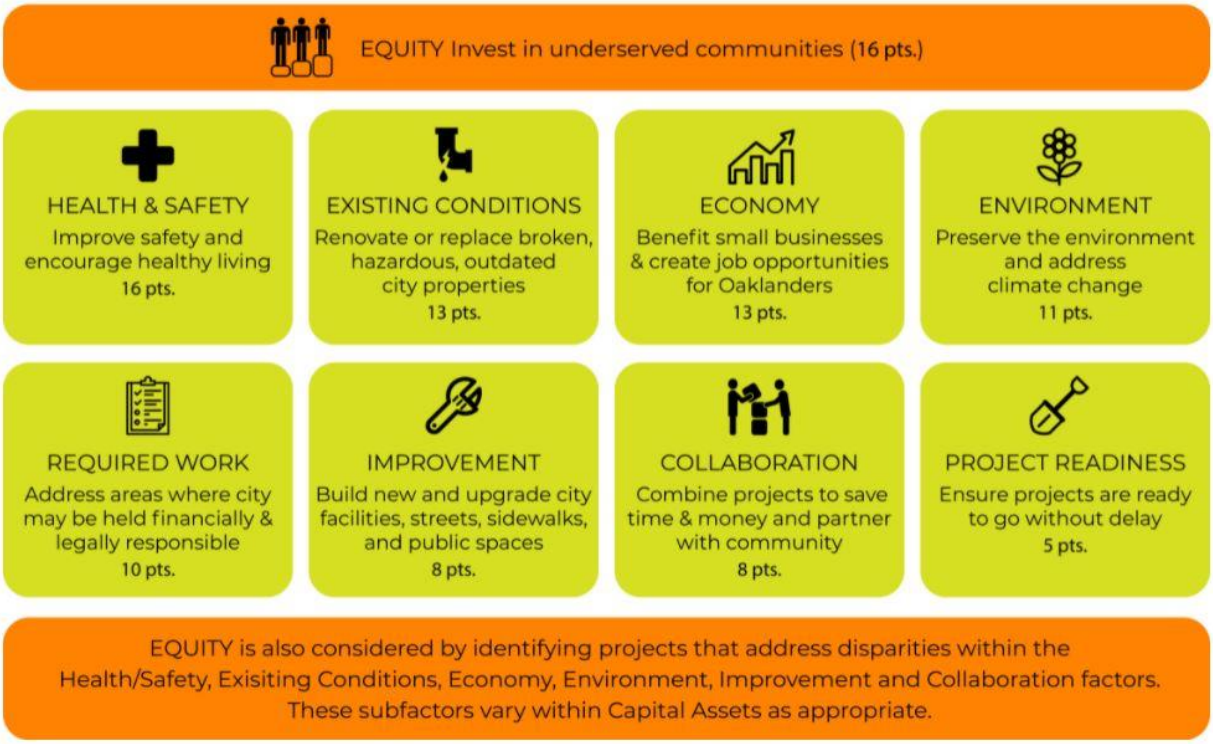
Community-engagement based criteria is unique from the other approaches in that it focuses on how projects are developed rather than the impacts of the projects themselves. Prioritizing projects based on community engagement helps ensure that projects that may have an impact on a community are shaped by that community. Further, by tying potential funding to community engagement, MPOs help hold project sponsors accountable and encourages them to actively engage with communities in a meaningful way. The Mid-America Regional Council, for example, scores projects based on their level of engagement, with more points awarded to projects with clear and specific strategies for engaging with communities of concern during project implementation. Similarly, the Metropolitan Council in the Twin Cities has project sponsors describe their community engagement methods as well as the tools they

[47] Augustina Krapp, Jesus M. Barajas, and Audrey Wennink, Equity-oriented Criteria for Project Prioritization in Regional Transportation Planning, https://journals.sagepub.com/doi/abs/10.1177/03611981211001072
[48] ibid.
[49] Howard County, Howard County Complete Streets, https://www.howardcountymd.gov/transportation/complete-streets

used and the influence community feedback had on projects. This description is used to award points during project prioritization.[50]

Several examples of best practice can also be drawn from other jurisdictions across the country. For example, in 2018 the City of Oakland overhauled its CIP prioritization process to help ensure community values are reflected in its 2-year CIP. The new citywide prioritization factors and weighting center on equity, as shown in **Figure 4**.[51] Not only are projects scored specifically on if it is located in an underserved community, but equity is a consideration in other prioritization measures as well. In addition to using equity centered prioritization criteria, Oakland's Department of Race and Equity is consulted regularly throughout the CIP development process to help ensure the CIP incorporates equity in a manner that is meaningful and aligns with Oakland's objectives.[52]

Figure 4: Citywide Prioritization Factors and Weighting System for Oakland, CA



Similar to Oakland, the Boston Region MPO recently updated its TIP criteria to center on equity more explicitly. Under the new scoring criteria, projects receive progressively more points based on the share of equity populations in the project area and the expected impacts of the project. An equity multiplier is

[50] Augustina Krapp, Jesus M. Barajas, and Audrey Wennink, Equity-oriented Criteria for Project Prioritization in Regional Transportation Planning, https://journals.sagepub.com/doi/abs/10.1177/03611981211001072
[51] City of Oakland, Oakland's Capital Improvement Program, https://www.oaklandca.gov/topics/capital-improvement-program
[52] ibid.

applied to each project to help ensure that projects are spread fairly across all areas of the region.[53] Lawrence, KS also incorporates equity as a prioritization factor in its CIP. In Lawrence, a project's score in the equity category is based on the following questions: 1) does the proposed project positively impact populations of different incomes, races, education levels, language skills, ages, physical or mental abilities, or other vulnerable population and 2) is the proposed project in a low- or moderate-income area as outlined by the U.S. Department of Housing and Urban Development?[54]

PRIORITIZING ACROSS DEPARTMENTS AND ASSET TYPES

A major challenge of capital planning is that it involves a number of departments and stakeholders within an organization. Prioritizing projects across departments and asset classes can be difficult. This challenge is highlighted in the results of a survey of state transportation agencies regarding prioritization of capital projects; nearly two-thirds of survey respondents felt their current project evaluation procedures do not address or poorly address funding in a mode-neutral manner.[55]

There are a variety of ways to navigate the issue of prioritizing across departments, but the literature does not provide a clear best practice. For example, the Utah Department of Workforce Services notes in its guidance on CIP development that with a standardized prioritization methodology, jurisdictions can first score and prioritize projects by department before ranking them against each other, or jurisdictions can rank all projects against each other from the start. Jurisdiction size and capacity may play a role in determining the best approach.[56]

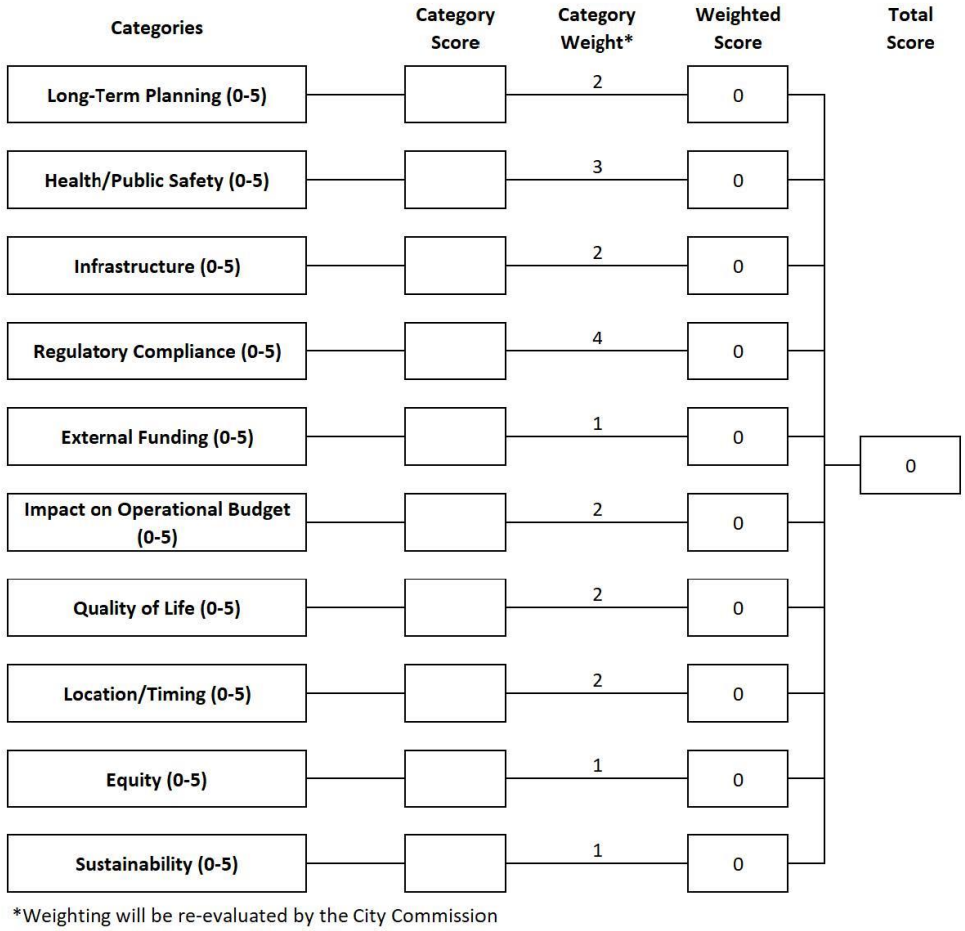
Looking to other jurisdictions across the country provides some guidance. For example, the City of San Diego's scoring and prioritizing policy for CIPs sets up a process that allows decision-makers to optimize available resources for projects. Under the policy, projects within a restricted funding category only compete with projects in the same funding category and projects only compete with projects in the same asset category. Once a project is prioritized for inclusion in a CIP, it only competes with projects within the same development phase. In comparing projects against others similar to it, the city is able to score projects on a more even playing field.[57]

In the City of Lawrence, projects are scored based on a number of broad categories, as shown in **Figure 5**.[58] By creating evaluation criteria based on broad categories, the City is able to apply the same criteria

[53] Boston Region Metropolitan Planning Organization, A Guidebook to the Boston Region MPO TIP Criteria, https://www.ctps.org/data/pdf/plans/TIP/FFYs-2021-2025-TIP-Criteria-Guidebook-February-2021-v2.pdf
[54] City of Lawrence, Kansas, City of Lawrence Capital Improvement Plan Prioritization Summary, https://lawrenceks.civicweb.net/document/31696/CIP%20Prioritization%20Guidelines%20Revised.pdf?handle=28289441CE9645A6AB0F8B95AEC6AFDF
[55] Elliot Sperling and Catherine Ross, Strategically Aligning Capital Improvement Prioritization to Performance Goals, https://journals.sagepub.com/doi/10.1177/0361198118787639
[56] Workforce Services, An Introduction for Local Leaders: Capital Improvement Planning, https://www.ruralplanning.org/assets/capital-improvement-planning-web.pdf
[57] City of San Diego, Project Prioritization, https://www.sandiego.gov/sites/default/files/v3prioritization_0.pdf
[58] City of Lawrence, City of Lawrence Capital Improvement Plan Prioritization Summary, https://lawrenceks.civicweb.net/document/31696/CIP%20Prioritization%20Guidelines%20Revised.pdf?handle=28289441CE9645A6AB0F8B95AEC6AFDF

to a variety of project types. The Municipality of Trent Hills, Ontario's CIP prioritization criteria, like that of Lawrence's, is centered around broad categories that can be applied to a variety of project classes.[59]

Figure 5: Prioritization Criteria, Lawrence, KS



State DOTs are also a good model for how assets can be prioritized across different classes of infrastructure. The criteria in these methodologies center on DOT priorities and performance measures that will be impacted by a variety of capital projects.[60] Some more flexible prioritization methodologies exist that can serve as an example. The Oregon DOT evaluates projects for its Enhance Program based on three modal criteria: (1) connectivity and system benefits, (2) safety and public heath, and (3) accessibility and mobility as well as six cross-modal criteria: (1) economic development, (2) social

[59] City of Trent Hills, Capital Project Prioritization Matrix, https://trenthills.civicweb.net/document/88704
[60] Elliot Sperling and Catherine Ross, Strategically Aligning Capital Improvement Prioritization to Performance Goals, https://journals.sagepub.com/doi/10.1177/0361198118787639

benefits, (3) environmental stewardship, (4) safety, (5) project readiness, and (6) leverage [of funding and project coordination opportunities].[61]

Virginia DOT uses a mode-neutral prioritization process called SMART SCALE, which evaluates capital projects in six categories: safety, congestion mitigation, accessibility, environmental quality, economic development, and land use. Projects are scored and prioritized based on the SMART SCALE evaluation.[62]

ADDRESSING STATE OF GOOD REPAIR (SGR)

Projects that address a jurisdiction's SGR needs tend to comprise a large portion of a CIP. Jurisdictions often have a backlog of maintenance needs caused by a lack of funds for maintenance costs, jurisdictional priorities that result in restricted maintenance activities, a focus on short-term planning that overlooks maintenance needs, and/or a limited ability to quantify consequences of deferred maintenance.[63] However, a large backlog of SGR needs can become costly, and it is important to have a good process for determining when assets should be renewed first.[64] Beyond just escalating costs, SGR backlogs can lead to service disruptions and safety issues.

Quantifying the cost of deferring maintenance can provide the data needed to make informed decisions about state of good repair needs.

Jurisdictions can measure the severity of an SGR need to help prioritize among a large backlog of capital projects. A useful tool for prioritizing SGR investments is to explore the business risk exposure (BRE) for not undertaking a particular project. Specifically, risk assessment measures the likelihood that an asset will fail and the consequence of such a failure.[65]This measurement allows a jurisdiction to quantify the risk to services of deferred maintenance and can help agencies prioritize SGR investments on assets whose failure would be critical.

State DOTs and transit agencies can also provide some guidance on strategies for assessing deferred maintenance costs. NCHRP Report 859 presents a framework for quantifying the consequences of deferred maintenance due to a lack of funds to perform all needed maintenance. Under the framework, deferred maintenance is quantified by comparing changes in an asset condition and other performance measures under different maintenance scenarios. While performance measures may vary, key measures include deterioration of an asset's condition over time, decreases in an asset's remaining life, increases in future costs to cover the desired level of service, increases in maintenance backlog costs over time, and decreases in the asset group's value over time.

[61] ibid.
[62] Elliot Sperling and Catherine Ross, Strategically Aligning Capital Improvement Prioritization to Performance Goals, https://journals.sagepub.com/doi/10.1177/0361198118787639
[63] National Academies of Sciences, Engineering, and Medicine, NCHRP Research Report 859 Consequences of Delayed Maintenance of Highway Assets, https://www.nap.edu/catalog/24933/consequences-of-delayed-maintenance-of-highway-assets
[64] Water Research Foundation, Overview: What is Capital Project Validation and Prioritization? https://simple.waterrf.org/simple/media/CIP/index.html
[65] ibid.

FINDING A BALANCE BETWEEN SGR AND NEW CAPITAL

Jurisdictions often face the conundrum of whether to fund state of good repair projects over new assets or infrastructure. Simply replacing assets in-kind may result in jurisdictions failing to invest in the future as technology and infrastructure needs change over time. Conversely, focusing investments on new infrastructure can result in a growing maintenance backlog and degrading infrastructure quality.

A common way to balance infrastructure maintenance vs. expansion is through score-based project prioritization. A prioritization scheme that accounts for SGR needs among a variety of factors can be used to evaluate both maintenance and expansion projects side-by-side. For example, in the City of San Diego's CIP prioritization process, asset condition accounts for 20 percent of the prioritization score[66]. While projects that maintain an existing asset have an advantage in scoring, other factors such as economic prosperity, risk to health, and sustainability are considered in the evaluation as well.

Business risk exposure-based assessments could also be tweaked to find a balance between new and old investments. Failure to invest in new assets like better transportation infrastructure or climate resiliency carry their own business risk, which could be compared to the cost of failing to make SGR investments.

STAKEHOLDER ENGAGEMENT

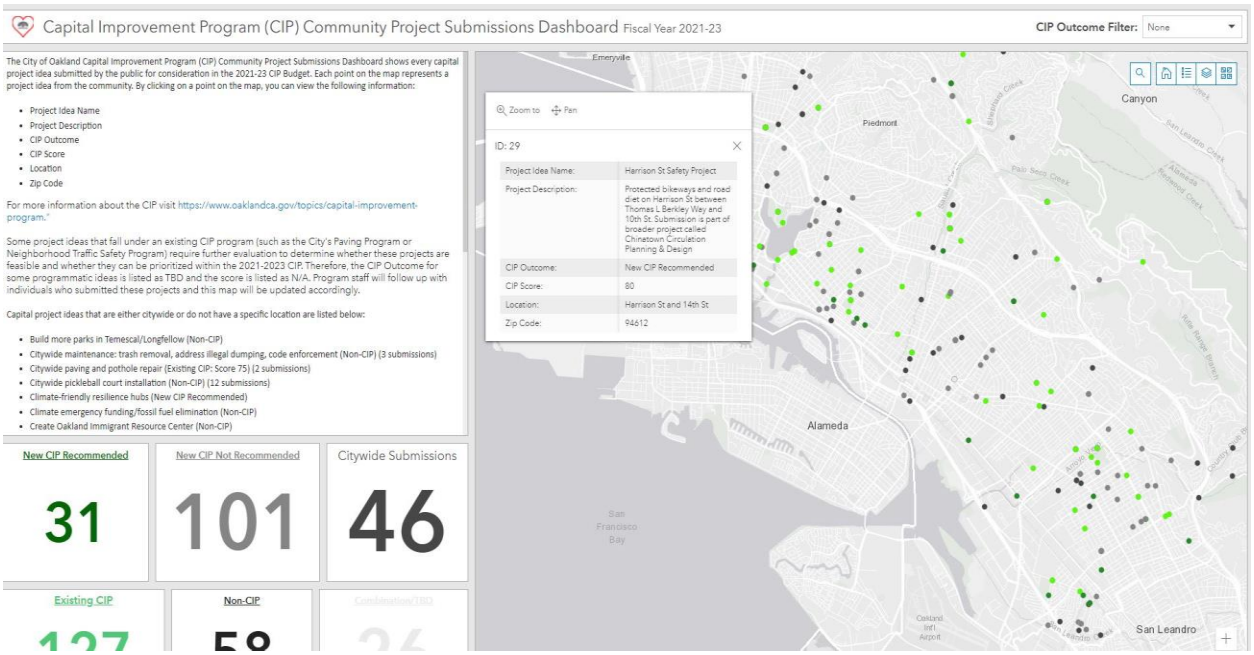
Stakeholder engagement is an important piece of developing a capital budget. Jurisdictions across the country use a variety of innovative engagement approaches. In general, jurisdictions attempt to engage the public throughout the CIP development process via community meetings, surveys, and other outreach strategies at varying degrees of intensity. For example, the City of Houston conducts public meetings in each of its council districts at the start of the CIP development process to obtain citizen input on needed improvements.[67] In San Diego, the CIP development process begins each year with the city's Community Planners Committee and Community Planning Groups, who gather community recommended CIP projects that are submitted to the Mayor, City Council, and a CIP Review and Advisory Committee. San Diego's Community Planners Committee is made up of citizens who are "responsible in an advisory capacity to the City on those matters related to the General Plan and respective Community Plans," thus helping ensure community involvement in plans.[68] San Diego's Community Planning Groups serve as another mechanism for community input.[69] The City also solicits public feedback on the draft CIP during public budget hearings with local leaders.[70]

The City of Oakland begins engaging the public at the start of its CIP development process. Every two years, the City looks to the community to help identify and prioritize capital projects. At the start of each CIP cycle, the city opens up a public portal for residents to submit projects for inclusion in the CIP (**Figure 6**).[71] In developing its current CIP, the City of Oakland hired consultants to lead community engagement during the development process. Engagement was specifically targeted at communities in

[66] City of San Diego, Capital Improvement Program Project Prioritization https://www.sandiego.gov/sites/default/files/fy18ab_v3prioritization.pdf
[67] City of Houston, Capital Improvement Projects, https://www.houstontx.gov/cip/index.html.
[68] City of San Diego, Community Planners Committee, https://docs.sandiego.gov/councilpolicies/cpd_600-09.pdf
[69] City of San Diego, Community Planning Groups, https://www.sandiego.gov/planning/community/cpg
[70] City of San Diego, Capital Improvement Program, https://www.sandiego.gov/cip/about/budget
[71] City of Oakland, Capital Improvement Program (CIP) Community Project Submissions Dashboard Fiscal Year 2021-2023, https://oakgis.maps.arcgis.com/apps/dashboards/d2807f24a1194848b531b0b3a98ab53a

the city that were underrepresented in previous CIP outreach. In addition to soliciting project ideas, in the early phases of CIP development, the City held community meetings and distributed paper surveys to gain an understanding of community priorities. The results of this outreach informed how the city weighted the prioritization criteria.[72]

Figure 6: CIP Community Project Submission Dashboard, Oakland, CA



Participatory budgeting also provides an opportunity to engage communities about prioritization during the CIP process. Numerous cities across the country have undertaken participatory budgeting efforts to better engage with constituents and give them more of a voice in the prioritization process. Seattle, for example, runs the Your Voice, Your Choice participatory budgeting program for parks and streets. The public can propose potential capital project ideas that are then prioritized and voted on by community members.[73] Other major cities with participatory budgeting programs include Oakland, Philadelphia, New York, and Chicago.

It is important to engage the public during the development of CIPs, but it is equally important to keep the public informed once the CIP is finalized. Capital budgets can be complicated technical documents and presenting them clearly is beneficial for building accountability and trust. GFOA suggests that any capital budget presentation should include the following:

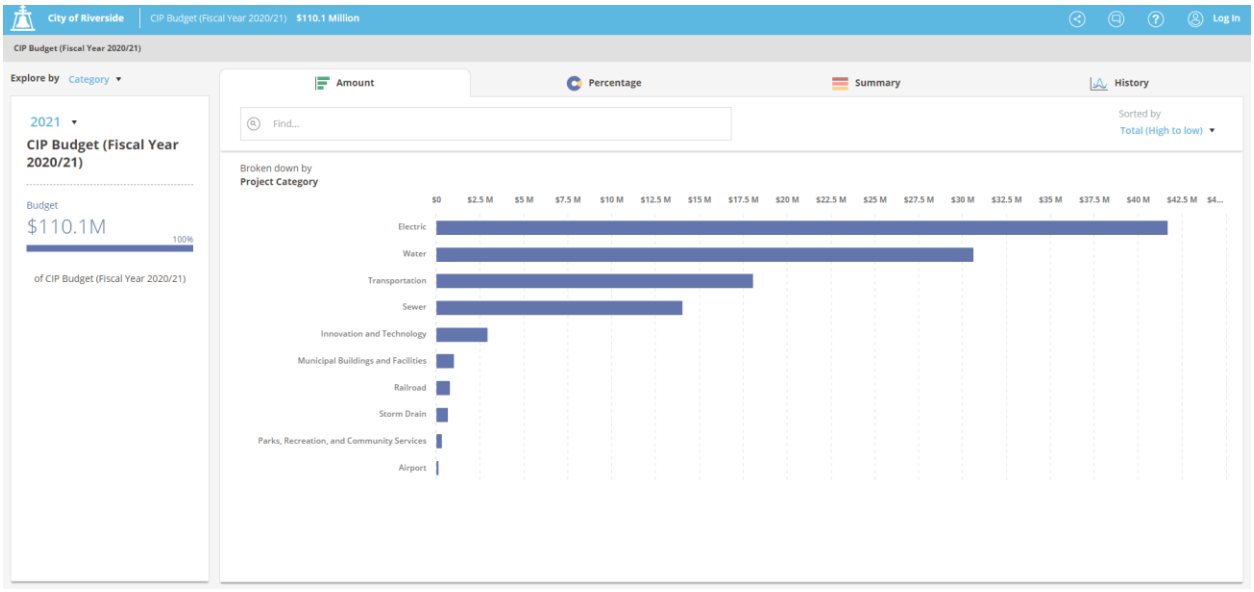
- **Overview of capital planning policies**, which present background on how a jurisdiction approaches capital planning.

[72] City of Oakland, Oakland's Capital Improvement Program, https://www.oaklandca.gov/topics/capital-improvement-program
[73] City of Seattle, Your Voice, Your Choice, https://www.seattle.gov/neighborhoods/programs-and-services/your-voice-your-choice

- **Connection to other plans**, highlighting how the CIP relates to other planning efforts in the jurisdiction, including long range and master plans.
- **Multi-year capital plan**, identifying a list of prioritized projects over a designated time horizon.
- Information on **asset management** and upcoming SGR needs.
- **Overview of monitoring and reporting practices** to keep internal and external stakeholders informed and to ensure capital projects stay on budget and schedule.
- **Highlights and summary**
- **Individual project details**
- **Operating impacts**

Jurisdictions across the country are sharing capital budget data with the public and using online interfaces to develop user-friendly visualizations.[74] Data visualization tools are a helpful way of translating complicated financial data into interactive charts, graphs, and maps that are easy for the public and other stakeholders to absorb. For example, Riverside, California has an online, publicly accessible budget portal where all capital projects are entered, as shown in **Figure 7**. This portal helps Riverside be more transparent about city finances and provides citizens with direct access to both the overall city budget, but also how capital projects are funded.[75] Similarly, Pittsburgh, PA's Comptroller's Office maintains Budget Explorer, which provides information to the public on city budgets. Like Riverside's portal, Budget Explorer is intended to provide transparency and show the public where their tax dollars are going.[76]

Figure 7: Screenshot from Riverside's Budget Portal[77]



[74] GFOA, Capital Budget Presentation, https://www.gfoa.org/materials/capital-budget-presentation
[75] Alliance for Innovation, How Data Visualization Supports Capital Improvement Planning, https://www.transformgov.org/articles/how-data-visualization-supports-capital-improvement-planning
[76] City of Pittsburgh, Budget Explorer, https://budgetexplorer.pittsburghpa.gov/#!/year/default
[77] City of Riverside, Data Visualizations, https://riverside.openbook.questica.com/

Key Takeaways: Prioritization

- Score-based prioritization processes help make the selection of capital projects more objective and performance-driven. Jurisdictions build their scoring systems with a range of measures, including through qualitative and quantitative metrics.
- Prioritizing across department and asset type can be valuable to assist jurisdictions in allocating resources across a range of competing priorities.
- State of good repair prioritization is often based on quantitative measures such as asset condition or business continuity impact if an asset fails.
- Stakeholder engagement is an important component to prioritization. Prioritization schemes should reflect the public's own priorities and wider public policy objectives.

FUNDING AND PROGRAMMING

Evaluation and prioritization of projects is an important step in formalizing the budget priorities for a jurisdiction; however, it is ultimately the availability of funds that dictates which capital projects are programed in the CIP. Funding can come from a variety of sources, but it can be challenging to match funds fairly and transparently to projects. Jurisdictions have at their disposal a variety of funding options, each of which come with their own benefits and drawbacks. Funding can come from federal, state, and local sources, but eligibility requirements and the availability of funds can vary significantly based on location and asset type.

FUNDING SOURCES

Two major forms are general obligation (GO) bonds and Pay-as-you-go (PAYGO) funds. GO bonds are a form of debt financing and one of the most common funding options used in CIPs. These bonds require voter approval and are backed by the "full faith and credit of the issuing municipality."[78] GO bonds are largely used for projects that are otherwise not funded by city revenue and will serve the community in some way.[79] This includes infrastructure projects, like roads, bridges, water and sewer facilities, levees, schools, public universities, and other public works projects.[80]

PAYGO funds are generated from a jurisdiction's general fund and are intended to help jurisdictions offset long-term bond borrowing for capital projects.[81] PAYGO funds are made up of various payments

[78] The Courthouse: A Guide to Planning and Design, Financing Long Term Debt, https://www.ncsc.org/courthouseplanning/court-facility-funding-considerations/financing-long-term-debt
[79] City of Austin, Why and How Does the City Use Bonds to Fund Some Capital Improvement Projects?, https://www.austintexas.gov/faq/why-and-how-does-city-use-bonds-fund-some-capital-improvement-projects
[80] State of California, A Citizen's Guide to General Obligation Bonds, https://www.treasurer.ca.gov/publications/bonds101.pdf
[81] District of Columbia, 2021 PAO Pay-As-You-Go Capital Fund, https://cfo.dc.gov/publication/2021-pa0-pay-you-go-capital-fund

to a jurisdiction, such as property taxes. PAYGO funds can be used for capital projects; however, for must jurisdictions in the region, PAYGO is only a minor capital funding source.

In general, the literature does not provide extensive guidance on when PAYGO should be used versus GO bonds and other debt financing. A report from NASBO notes that debt financing is more appropriate than PAYGO for long-term infrastructure projects, as some of the costs of the debt financing will be passed to future users who will benefit from the infrastructure investment. However, bond terms should not exceed the life of the useful life of the asset it is financing.[82] Arlington County in Virginia considers PAYGO funds the most flexible funding source at the county's disposal and is typically used for assets with a useful life of 10 years or less.[83]

TRANSPARENCY IN FUNDING

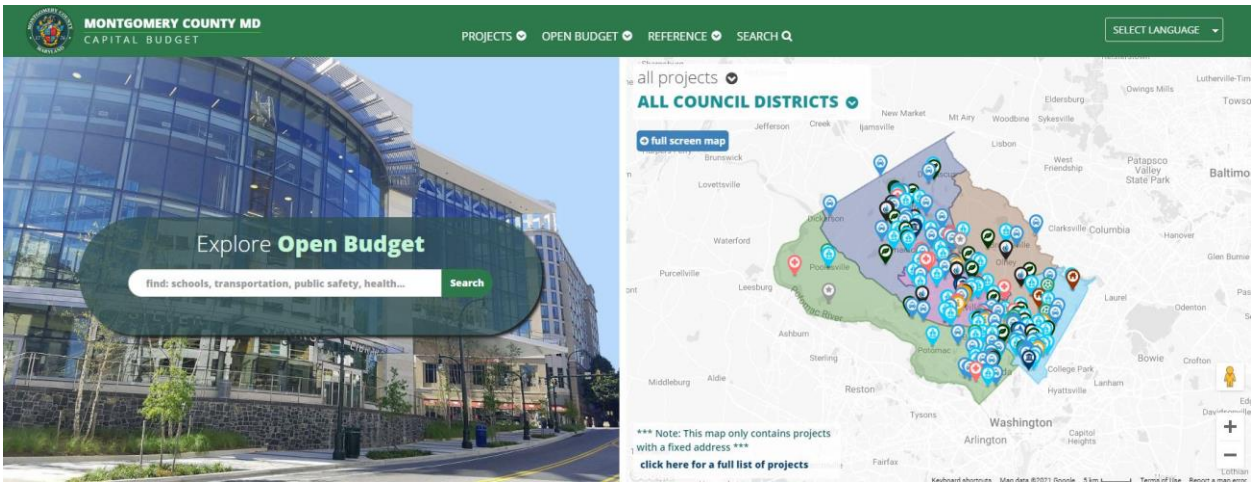
Transparency in decision making is of the utmost importance when developing a CIP. Showing stakeholders and the public how and why funding decisions are made builds trust and public confidence in the governing body. The best capital budgets enhance transparency and accountability to citizens, giving citizens broader context to understand all of the major components of the budget.[84] Transparency should go beyond publishing a budget on a city website and should be a part of the CIP development process.

Jurisdictions are making strides in engaging stakeholders throughout the CIP development process. The aforementioned growing popularity of participatory budgeting is one way jurisdictions are creating more transparent budgeting practices.

In addition to participatory budgeting processes, jurisdictions are using online portals to help maintain an open budget and present often complicated budgetary information in a way that is accessible to the public. Montgomery County in Maryland, for example, maintains an open budget interactive website, which breaks down both the capital and operating budgets.[85] The open budget website (**Figure 8**) provides detailed information about the projects included in the CIP, where they are located within the county, and how they are funded. All data can be downloaded, and users are able to view approved and recommended budgets for multiple years. In showing this information, Montgomery County provides transparency and allows the public to view how budgets have evolved over time.

[82] National Association of State Budget Officers, Capital Budgeting in the States, https://higherlogicdownload.s3.amazonaws.com/NASBO/9d2d2db1-c943-4f1b-b750-0fca152d64c2/UploadedImages/Reports/Capital%20Budgeting%20in%20the%20States.pdf
[83] Arlington County, General Capital Projects Fund, https://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/18/2019/08/11-PAYG-GO-ST.pdf
[84] GFOA, Capital Budget Presentation, https://www.gfoa.org/materials/capital-budget-presentation
[85] Montgomery County, Maryland, Open Budget, https://www.montgomerycountymd.gov/omb/openbudget.html

Figure 8: Montgomery County's Open Budget Website



UNEXPECTED FUNDING NEEDS

A challenge in developing CIPs is having funds available for unexpected needs. The literature provided limited guidance on this issue; however, examples from peers provide some insights. One method is to create a set-aside fund for smaller projects that may not meet a dollar value minimum to qualify on their own for inclusion in the CIP. In Newport News, VA for example, the City uses a cash capital fund made up of cash appropriated within the operating budget. This cash capital fund is largely used to purchase equipment, which would otherwise require GO bond funding. While this funding is focused on covering equipment purchases, it could also be used to in emergency situations.[86]

Another method is to adjust local debt ratios. In adjusting debt ratios, jurisdictions are given added flexibility to meet future and/or unexpected capital needs. For example, in developing its FY 2018 – FY 2027 CIP, Alexandria, Virginia's city council approved changes to the city's Adopted Debt Ratios as suggested by the city's Budget and Fiscal Affairs Advisory Committee. Specifically staff recommended changes to the Debt as a Percentage of Real Property Value and Debt Service as a Percentage of General Government Expenditures policies after comparing the city's current policy and forecasted capital needs to adopted policies and practices of peer jurisdictions.[87] Spending Affordability Advisory Committees, which currently operate in Anne Arundel, Howard, and Queen Anne's Counties, could conduct similar analyses to that in Alexandria, to help ensure that jurisdictions have adequate funds to cover unexpected capital needs.

[86] Newport News, VA, Adopted FY 2021-2025 CIP, https://www.nnva.gov/DocumentCenter/View/26911/Adopted-FY-2021-2025-CIP

[87] City of Alexandria, Proposed FY2021-FY2030 Capital Improvement Program Overview, https://www.alexandriava.gov/uploadedFiles/budget/info/budget2021/B%20-%20CIP%20Overview.pdf

MATCHING FUNDS

A number of funding mechanisms are available to jurisdictions for raising funds for projects, however, the literature does not indicate a best practice for raising a matching fund prior to a grant award. One option is to use money from a general fund or tax revenues. Allocating cash funds can be a safer bet than using debt financing. With cash funding, if a grant does not come through, a jurisdiction has at least not gone into debt to finance it; however, using the general fund can diminish the amount of money available in the operating budget.

Some cities also have grant offices within their finance offices that support departments in finding, procuring, and managing grants. A dedicated grant office helps ensure that funding from grants are spent wisely and projects are delivered on time. These departments can also be a good resource for obtaining matching funds. In Detroit, Michigan, the Office of Development and Grants has played a major role in securing investment in the city following its bankruptcy. Among its many roles, the Office of Development and Grants serves as a liaison between the city and funders, including foundations, corporate leaders, and other government agencies, to build partnerships that will support the city's programmatic priorities.[88]

The NCHRP Syntheses Report 459 presents other options to generate funds, which could ultimately provide funds for a grant match. One method for jurisdictions to raise funds for capital projects is through value capture. In general terms, value capture quantifies (in dollars) the expected return on capital investments and the cost to improve and sustain investments. A number of mechanisms for value capture exist, as shown in **Figure 9**.

[88] City of Detroit, Office of Development and Grants, https://detroitmi.gov/departments/office-chief-financial-officer/ocfo-divisions/office-development-and-grants

Figure 9: Types of Value Capture

Impact Fees	A one-time charge collected by local governments from developers to finance new infrastructure and services associated with new development.
Special Assessment Districts	An additional fee assessed on properties projecting a benefit owning to the geographic proximity of a new capital investment. Special assessment districts can only be applied with voter approval.
Negotiated Extraction	A one-time charge similar to an impact fee, but negotiated extractions are not part of a formal process. Rather, they take the form of in-kind contributions to local road networks, parks, or other public goods as a condition of development approval.
Air Rights	A type of joint development where development rights above or below a designated piece of infrastructure are used to generate and capture incremental increases in land value.
Joint Development/Public-Private Partnerships	A development project where a private-sector partner provides the facility or makes a financial contribution to offset construction costs.
Land Value Tax	A tax levied on the value of land benefiting from public infrastructure.
Tax Increment Financing	A mechanism that allocates any increase in the total property tax revenues towards a public investment within a designated area.
Transportation Utility Fees	Utility fees assessed on characteristics assumed to be more closely related to transportation demand than property taxes.

Value capture can be complicated to implement and requires a high level of collaboration between a range of stakeholders. In addition, the ability to use value capture is predicated upon enabling legislation by states, and some mechanisms may not be feasible in Maryland currently. However, value capture does have benefits. It can accelerate project delivery, provide local fund-matching opportunities, and offer seed money to get projects off the ground.[89] The literature provided a variety of

[89] National Academies of Sciences, Engineering, and Medicine, NCHRP Synthesis 459 Using Economic Value Created by Transportation to Fund Transportation, https://www.nap.edu/catalog/22382/using-the-economic-value-created-by-transportation-to-fund-transportation

examples of value capture in use. For example, Eugene, Oregon used development impact fees to cover a local match for new bike infrastructure.[90]

Beyond value capture, other models exist to provide alternative funds to jurisdictions. One such model is a green revolving fund (GRF). GRFs are defined as "an internal investment vehicle dedicated to financing energy efficiency, renewable energy, and other sustainability projects that generate cost savings."[91] To date, these funds have largely been used in university settings; however, there are some examples of GRFs at the municipal level and at airports. Santa Barbara, for example, created a GRF in 2016 that will help fund energy efficiency projects.[92] GRFs have many benefits, including institutionalizing a mechanism for funding efficiency, implementing performance tracking, and establishing an independent and flexible funding source. These funds can also help demonstrate the business case for sustainability projects and help create a programmatic approach to funding projects focused on sustainability.[93]

FUNDING BICYCLE AND PEDESTRIAN PROJECTS

Bike and pedestrian projects can be incentivized through prioritization criteria or lumped in with existing roadway projects.

Determining the right funding source for projects can be a challenge, and often in the CIP programming process, larger infrastructure projects overshadow less expensive bicycle and pedestrian projects. The Alliance for Biking and Walking in partnership with the League of American Bicyclist's report *How Communities are Paying for Innovative On-Street Bicycle Infrastructure* provides some guidance on how to both integrate bicycle and pedestrian projects into larger infrastructure efforts and/or find innovate ways of funding these projects.

Prioritization criteria can play a role in receiving funding. The Federal Highway Administration's *Strategies for Accelerating Multimodal Project Delivery* advocates for implementing a project scoring process that includes criteria specific to bicycle and pedestrian projects or that weighs infrastructure projects that include multimodal elements differently than those that do not.[94] In Memphis, Tennessee, the criteria for awarding funding through the region's Surface Transportation Program explicitly awards points for infrastructure projects that include a shared-use path or cycle track.[95] Similarly, Maryland DOT's project scoring system is required by law to include criteria related to a projects ability to increase the use of walking, biking,

[90] Alliance for Biking & Walking and The League of American Bicyclists, How Communities are Paying for Innovative On-Street Bicycle Infrastructure, https://bikeleague.org/sites/default/files/PayingForInnovativeInfrastructure.pdf
[91] National Academies of Sciences, Engineering, and Medicine, ACRP Research Report 205 Revolving Funds for Sustainability Projects at Airports, http://www.trb.org/Main/Blurbs/179614.aspx
[92] ibid.
[93] ibid.
[94] Federal Highway Administration, Strategies for Accelerating Multimodal Project Delivery, https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_delivery/fhwahep19006.pdf
[95] Alliance for Biking & Walking and The League of American Bicyclists, How Communities are Paying for Innovative On-Street Bicycle Infrastructure, https://bikeleague.org/sites/default/files/PayingForInnovativeInfrastructure.pdf

and transit.[96] In adding a multimodal component to the evaluation process for roadway projects incentivizes the inclusion of multimodal projects in other infrastructure projects and increases the odds of multimodal projects receiving funding.

Another option is to bundle bicycle and pedestrian projects with ongoing SGR and maintenance projects on roadways. Bundling projects leads to operational efficiency and helps ensure that road users are disrupted once rather than multiple times due to construction. The City of Memphis, for example, used Highway Safety Improvement money to install a protected bike lane in conjunction with an already planned roadway resurfacing project.[97]

Key Takeaways: Funding and Programming

- Debt financing is recommended for capital investments with long useful lives. The literature recommends that jurisdictions avoid issuing debt for investments that will need to be replaced before the debt itself has reached maturity.
- Online dashboards and web maps can be used to communicate the status of capital investments to the public.
- Jurisdictions can set aside a portion of their operating and capital funds to cover unexpected capital expenses.
- Jurisdictions utilize a variety of value-capture financing methods to raise additional revenue for capital improvements.
- A strategy for funding bicycle and pedestrian improvements is to combine them with roadway projects to leverage state or federal highway funding.

POST-IMPLEMENTATION MONITORING

In the course of interview process, jurisdictions expressed interest in how to monitor the post-implementation progress of their capital improvement plans. Monitoring activities can include tracking spend-downs, project progress, evaluating capital spending from an equity perspective, as well as ways to communicate these metrics across departments, with elected officials, and with the public.

Jurisdictions should first understand relevant legal and fiduciary regulations that apply to tracking and monitoring. Multiple software systems may be required to help jurisdictions fulfill these requirements. Jurisdictions should consider how these technology programs will interact and how they export data to integrate the systems to the extent possible and minimize the need for manual data editing. GFOA recommends that communications regarding project status and spend-down are written clearly, use

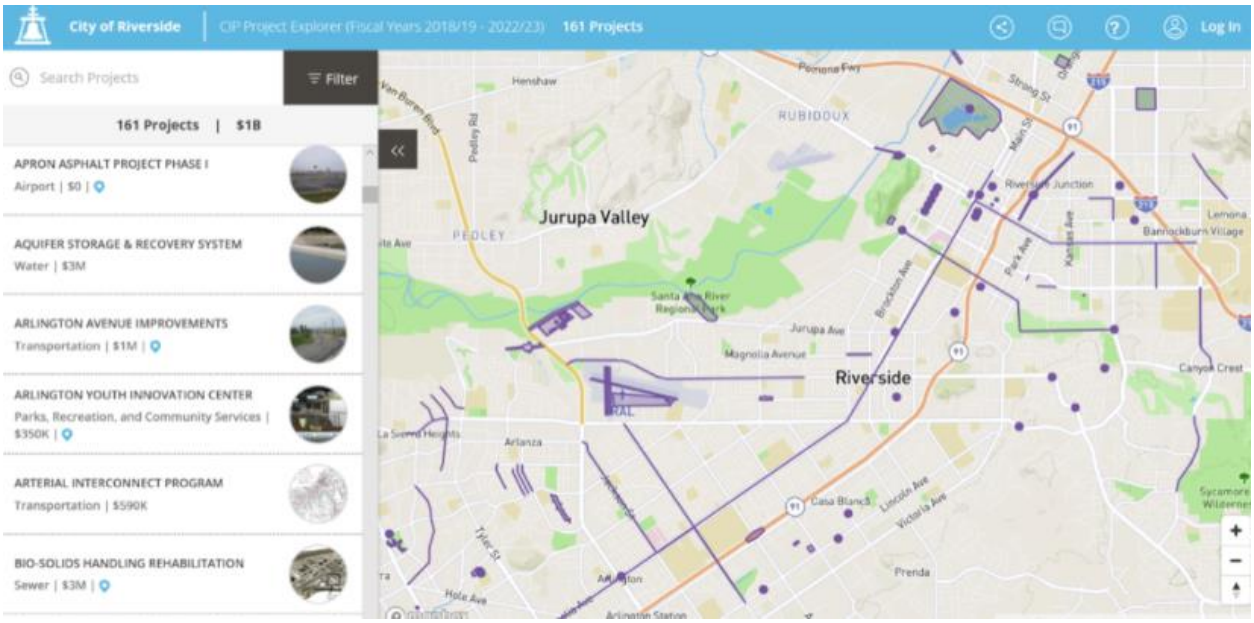
[96] Federal Highway Administration, Strategies for Accelerating Multimodal Project Delivery, https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_delivery/fhwahep19006.pdf

[97] Alliance for Biking & Walking and The League of American Bicyclists, How Communities are Paying for Innovative On-Street Bicycle Infrastructure, https://bikeleague.org/sites/default/files/PayingForInnovativeInfrastructure.pdf

plain language that can be easily understood by all stakeholders, and are conducted on a regular basis. Reports should compare original project plans with actual project status and highlight any major disparities between the two. [98]

With the rise of open data and open budget initiatives, jurisdictions across the country are finding ways to combine data, technology, and mapping to conduct post-implementation monitoring. Riverside, California integrated budget data into an online, publicly accessible map shown in **Figure 10.**[99] This map features all 161 projects in the FY2018-2023 CIP and links budget data to show spend-down and other project information with just one click.

Figure 10: Riverside, California's CIP Project Explorer



Madison, Wisconsin used an ArcGIS story map to show where capital projects are located and information about them, as shown in **Figure 11.**[100] Mapping the budget was a way for the City to improve transparency and make the budget more accessible to residents.[101] Users are led through a series of goals, strategies, and graphs before having the chance to dive into individual capital projects.

[98] GFOA, Capital Project Monitoring and Reporting, https://www.gfoa.org/materials/capital-project-monitoring-and-reporting
[99] Image from Alliance for Innovation, How Data Visualization Supports Capital Improvement Planning, https://www.transformgov.org/articles/how-data-visualization-supports-capital-improvement-planning
[100] City of Madison, Wisconsin, 2020 Capital Improvement Plan, https://cityofmadison.maps.arcgis.com/apps/Cascade/index.html?appid=6754070039944e9fa209c3c30d8051c4
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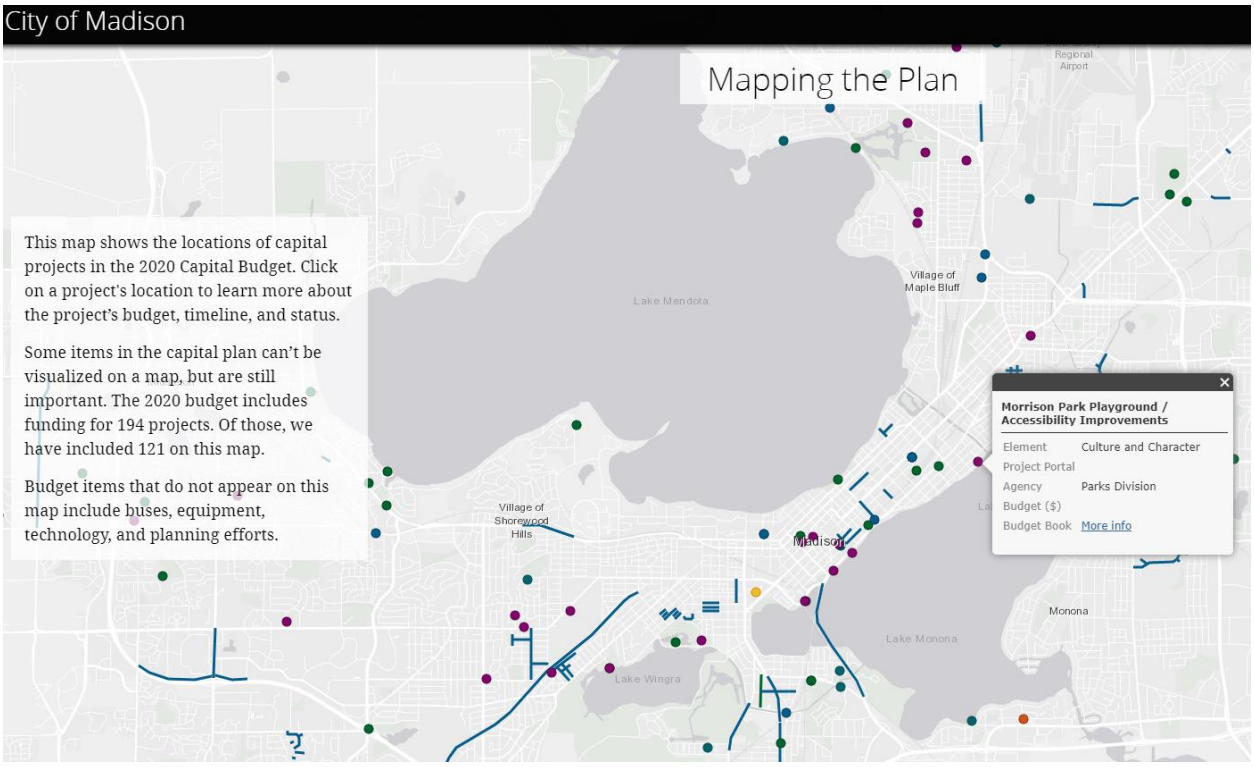
Figure 11: Madison, Wisconsin's Budget Map



Key Takeaways: Post Implementation

- Online resources can help the public monitor progress of local capital projects.

CONCLUSION

The BMC study team conducted an extensive scan of literature related to CIPs to identify innovative or best practices in capital planning. This review included academic literature, existing jurisdiction CIPs, relevant regulations, guidebooks, and practices in related sectors like transit and state highway agencies. Much like in the BMC region, there is no standard template for how jurisdictions across the country go about their CIP process. The research found a wide range of practices, many of which are the result of local context.

The literature did raise a few key points which may be relevant to jurisdictions in the CIP process:

- **Equity:** There are several excellent models for how equity is incorporated throughout the CIP process. At the outset, jurisdictions focus on public engagement that collects feedback from diverse voices on local capital investment priorities. The needs identification process includes metrics to ensure that projects come from a range of communities and do no exclude investments located in environmental justice or historically disadvantaged communities. Following the identification stage of the CIP, equity can be incorporated into how projects are prioritized, either as a stand alone metric or through the overall framing of prioritization criteria. In some cases, jurisdictions empower community members through participatory budgeting to directly allocate capital revenues. Finally, equity can be built into the programming process. Transparent communication around the CIP program, including progress toward implementation, can help demonstrate that local engagement has resulted in local action. The equitable distribution of funding can ensure disadvantaged communities do not carry a disproportionate burden of capital investment costs or municipal debt vis-à-vis the benefits they accrue from those investments.
- **Technology:** Jurisdictions leverage technology to help make the CIP process more transparent. Several communities have dashboards and online resources where the public can suggest capital investments, review capital needs, provide input on prioritization, and track the location and status of investments. EAM systems allow jurisdictions to track infrastructure assets, providing insight into work orders, asset condition, and replacement needs.
- **SGR and Resiliency:** For most jurisdictions, SGR projects represent the largest capital expenses. Often replacement and maintenance needs outstrip the available funding. To help guide investment decisions, jurisdictions may look at the comparative risk and opportunity cost associated with not replacing an asset. By gauging the severity of disruption associated by asset failure, governments can rank SGR investment priorities. Related to SGR is resiliency. Capital investments supporting resiliency, just like SGR investments, focus on reducing risk and disruption. Resiliency and SGR evaluation frameworks can work together; for example, a tunnel rehabilitation project can incorporate drainage hardening in the design to ensure aging infrastructure is not only replaced but able to better handle future weather events.
- **Benefits and Funding:** When deciding which types of funding sources are most appropriate for a capital investment, it is important to consider whether who benefits is also who pays for the improvement. For example, long-term debt financing may be most appropriate for investments that will benefit users long into the future while projects with comparatively shorter lifespans are more appropriate to fund through current revenue (e.g. PAYGO). Some sources recommend not funding assets with shorter useful lives than their debt terms (e.g. financing an asset with a 15 year lifespan with a 30-year bond). Similarly, there are several value capture funding mechanisms that can help support the local value created by a capital investment.
- **Prioritize Across Asset Types:** Capital decisions are often made within silos. This can result in certain types of investment (e.g. bicycle and pedestrian infrastructure) being underfunded compared to other assets. There

are several models for prioritizing investments across modes, departments, or asset class to ensure a level playing field for how capital investments are assessed. Funding eligibility can often drive the decisions of which types of projects get funded. Bundling of capital investments (e.g. including active transportation as part of a roadway project) is one strategy to fund projects that have limited funding opportunities as stand-alone investments.

- **Unconstrained Funding:** The literature found that a comprehensive fiscally unconstrained budget is relatively rare for local jurisdictions but common practice for organizations like DOTs and transit agencies. Keeping an inventory of capital needs, including those that do not get funding is important for several reasons. It allows communities to quickly identify priorities if additional funding is identified. It allows jurisdictions to communicate their complete funding needs and ensure that annual capital budgeting decisions do not obscure longer-term funding needs.

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Task 2 Technical Memorandum: Healthy Communities Best Practices

Contents

INTRODUCTION

PURPOSE OF STUDY

The transportation industry is broadening its planning focus from commuter trips to all trips and from vehicular trips to trips made by all modes. More inclusive planning practices focus on active transportation and how the built environment fosters improved health outcomes and overall well-being.

To ensure that the Baltimore region is holistically considering the impact of infrastructure on physical and mental health, BMC is seeking to identify innovative initiatives and strategies at the local and regional level that can be incorporated into the planning process. This project is an opportunity to provide a roadmap to coordinating land use decisions, community design, and transportation planning in a way that supports active, healthy, and vibrant communities.

The Healthy Communities section of this project seeks to identify best practices for planning healthy communities and areas where improvements can be made to the built environment to promote active lifestyles, connections to jobs and services, and walking and biking on a regular basis. The focus of this project is specifically on the nexus between the built environment and health, and how the transportation system can support healthier outcomes for all members of the community.

METHODOLOGY AND OVERVIEW OF SOURCES

This technical memorandum, the second of two relating to healthy communities, summarizes the literature review conducted to identify best practices in healthy community strategies. Following the research questions identified in the first technical memorandum, this literature review highlights best practices related to those topic areas and shares examples of where and how they have been applied nationally.

Areas of research were informed by guidance from interviews with participating jurisdictions and agencies. The research method focused on publicly available online resources, including white papers, briefing reports, news articles, and governmental and non-profit initiatives and campaigns. Key organizations included the American Planning Association (APA), American Public Health Association (APHA), Transportation for America, Center for Disease Control and Prevention (CDC), and the Robert Wood Johnson Foundation (RWJF). This literature review groups findings by theme in the sections that follow.

AREAS OF RESEARCH

The following areas of research were identified as the most pressing concerns and topics of interest during jurisdictional and agency interviews.[1] It is important to note that the nexus of transportation planning and public health covers a broad swath of interconnected issues; this research effort by no means represents an exhaustive analysis and, instead, provides a summary of best practices for the priority themes identified during the interviews. A list of resources is provided in each section for those interested in diving deeper into each topic.

[1] See Task 1 Memo for a complete summary of the jurisdictional and agency interviews.

DEFINITION OF HEALTHY COMMUNITIES

A review of definitions from the leading organizations focused on promoting healthy communities identified key common themes. All of the definitions reference the significance of access to crucial services, goods, and amenities that support healthy lifestyles. These include healthy food, recreation, medical services, employment, and social opportunities. The primary linkages between health and transportation are active transportation, multimodal options, and reliable access. Additionally, all the definitions emphasize the need to provide safe and comfortable access for all ages and abilities to minimize discrepancies between health outcomes for all community members.

The CDC defines a healthy community as "one in which local groups from all parts of the community work together to prevent disease and make healthy living options accessible. Working at the community level to promote healthy living brings the greatest health benefits to the greatest number of people. It also helps to reduce health gaps caused by differences in income, education, race and ethnicity, location and other factors that can affect health. Healthy communities commonly have high vaccination rates to protect citizens from diseases and easy access to medical care and healthy food; are designed for healthy living at home, work, and school; and provide good mental health resources. Often, this also means it is safe and easy to walk, bike, and play in parks and community spaces."[2]

The American Association of Retired Persons (AARP) focuses on livability and defines a livable community as a one "that is safe and secure. It offers choices in where to live and how to get around. And it equitably serves residents of all ages, ability levels, incomes, races, ethnicities, and other backgrounds. Livable communities: enhance personal independence; allow residents to remain in their homes and communities as they age; and provide opportunities for residents of all ages, ability levels, and backgrounds to engage fully in civic, economic, and social life."[3] The AARP Policy Book[4] broadly highlights the major land-use, housing, and transportation policies that support aging in place and has a chapter on livable communities.

The RWJF, the nation's largest philanthropy dedicated solely to health, states that "where we live shouldn't determine how long or how well we live. In our communities, we all should be surrounded by conditions that enable us to live the healthiest life possible, such as access to healthy food, quality schools, stable housing, good jobs with fair pay, and safe places to exercise and play. Unfortunately, in many communities, there are persistent barriers to health and opportunity to thrive."[5] RWJF is working alongside others to build a national Culture of Health. Their goal is to help raise the health of everyone in the United States to the level that a great nation deserves, by placing well-being at the center of every aspect of life.

According to the APA, healthy communities "are places where all individuals have access to healthy built, social, economic, and natural environments that give them the opportunity to live their fullest potential regardless of their race, ethnicity, gender, income, age, abilities, or other socially defined

[2] CDC, A Healthy Community is a Prepared Community, https://blogs.cdc.gov/publichealthmatters/2015/09/a-healthy-community-is-a-prepared-community/
[3] AARP, What is a Livable Community?, https://www.aarp.org/livable-communities/about/info-2014/what-is-a-livable-community.html
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circumstance." APA provides a Heathy Communities Policy Guide[6] which "identifies policy ideas for local, state, and federally elected officials aimed at improving community health and quality of living through planning."

INCORPORATING PUBLIC HEALTH IN PLANNING & PROJECT IMPLEMENTATION

DATA METRICS & COLLECTION

Understanding baseline conditions is the first step in being able to trace impacts of planning interventions, whether it be on health outcomes or other areas of interest. There are a variety of assessment tools and data sources that communities may utilize to measure the existing conditions, as well as for evaluating progress made post-implementation of projects.

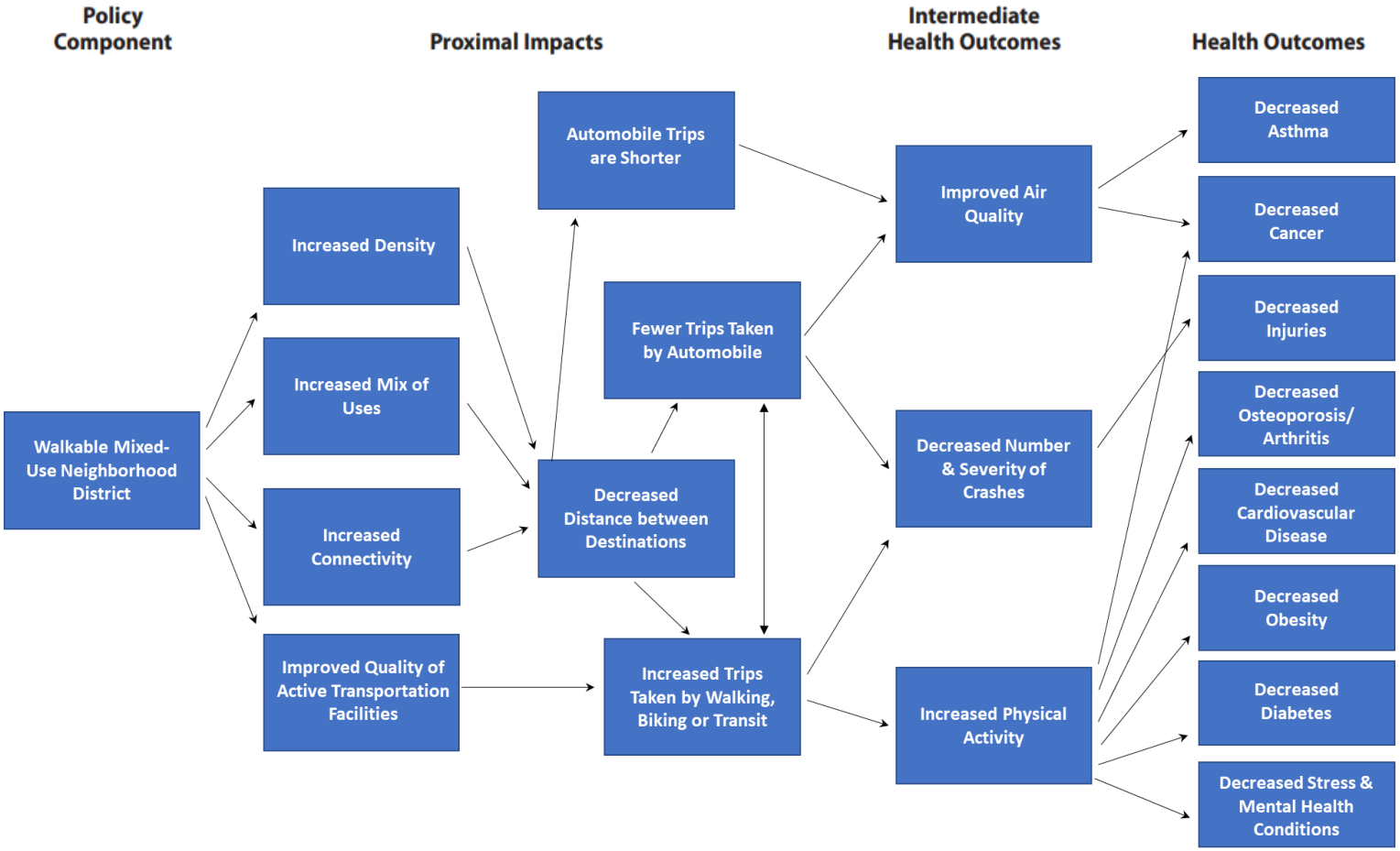
ASSESSMENT TOOLS

Historically, the metrics used to evaluate the effectiveness of transportation-related projects in improving quality of life have been proxies for public health rather than direct measures of health. Positive changes in indicators, such as miles of sidewalk, transit access, and air quality, are assumed to result in better health outcomes for the community. Health Impact Assessments (HIAs) are one tool jurisdictions can utilize to understand the health-related impacts of projects and programs. According to the Health Impact Project and the APA, "a HIA brings together scientific data, health expertise, and stakeholder input to identify the potential and often overlooked positive and negative effects on public health of proposed laws, regulations, projects, policies, and programs. HIAs provide pragmatic, evidence-based recommendations about how to reduce risks, promote benefits, and monitor the health effects of the implemented decision."[7]

The APA has developed an HIA Toolkit for Planners which provides guidance on how to move from "considering an HIA" to "conducting an HIA" within the context of the community and plan, project, or policy that the HIA will assess.[8] In most states, HIAs have informed at least one infrastructure decision, according to PEW Charitable Trusts.[9] Georgia, North Carolina, Oregon, and Washington are all states that have conducted ten or more transportation-related infrastructure HIAs. Choices informed by HIAs in the transportation sector include a proposal for street improvements in Burlington, VT; development of regional transportation plans and community strategies to guide local decisions related to greenhouse gas emissions in Kern County, CA; and development of policies to facilitate efficient freight movement in and around Atlanta, GA.

[6] APA, Healthy Communities Policy Guide, https://www.planning.org/publications/document/9141726/
[7] PEW Charitable Trusts, Health Impact Assessment Can Inform Planning to Promote Public Health, https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/08/health-impact-assessment-can-inform-planning-to-promote-public-health
[8] APA, Health Impact Assessment Toolkit for Planners, https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/Health-Impact-Assessment-Toolkit.pdf
[9] PEW Charitable Trusts, Health Impact Assessments, Community Engagement Can Promote Equitable Infrastructure Choices, https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2021/05/health-impact-assessments-community-engagement-can-promote-equitable-infrastructure-choices

The following diagram from a desktop HIA completed for a proposed zoning tool to encourage walkable mixed-use neighborhoods in Omaha, Nebraska illustrates a transportation pathway for influencing outcomes.[10] Impacts and outcomes shown in this figure are based on research sources referenced in the HIA. HIAs are one tangible strategy to incorporate measures of health into transportation plans and projects.

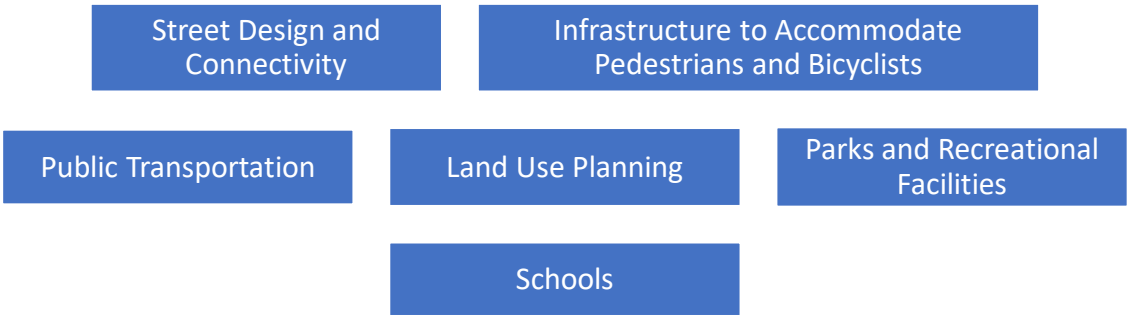


[10] Douglas County Health Department, Zoning for Walkable Mixed-use Neighborhoods: A Desktop Health Impact Assessment, https://www.pewtrusts.org/-/media/assets/2019/11/douglas-county-mixed-use-hia-report.pdf

The Massachusetts Department of Transportation (DOT) has its own Public Health Assessment document specifically for transportation projects.[11] The assessments incorporate health impact modeling tools which report outcomes in health impact metrics related to length and quality of life. While these tools provide some benefit, the assessment document recognizes that the tools have failed to meet accessibility and equity standards. An HIA study is included in the assessment which precedes project scoring and prioritization. The Scoring and Prioritization Frameworks consist of the following categories: mobility, safety, economic impact, etc. The Maryland Department of Heath provides a State-Specific HIA Toolkit which can be used as a resource by local jurisdictions incorporating HIAs.[12]

Other health assessments and metrics resources include Active Communities Tool Action Planning Guide and Active Communities Tool Assessment Modules from the CDC which assess community plans, policies, and resources through the lens of improving community built environments for physical activity.[13,14] The tool monitors progress toward achieving related built-environment goals and encourages cross-sector collaboration to create an action plan. The tool has a series of modules to assess the activeness of a community.

Active Communities Tool Assessment Modules:[15]



The APA provides metrics for planning healthy communities that can be used to assess, measure, monitor, and report progress toward healthy planning goals by utilizing an indicator system and mapping.[16] Related to transportation, the sub-areas of focus are active transportation, recreation, and traffic safety. In each of these categories, the tool outlines built-environment assessment indicators and a list of planning policies to encourage active living.

[11] Massachusetts DOT, Public Health Assessment for Transportation Projects, https://www.mass.gov/doc/public-health-assessment-for-transportation-projects/download
[12] Maryland Department of Health, Maryland HIA Toolkit, https://health.maryland.gov/phpa/OEHFP/EH/tracking/Pages/HIAToolKit-Home.aspx
[13] CDC, The Active Communities Tool Action Planning Guide, https://www.cdc.gov/physicalactivity/community-strategies/active-communities-tool/pdf/active-communities-toolkit-action-planning-guide-508.pdf
[14] CDC, The Active Communities Tool Assessment Modules, https://www.cdc.gov/physicalactivity/community-strategies/active-communities-tool/active-communities-toolkit-form-h.pdf
[15] Ibid.
[16] APA, Metrics for Planning Healthy Communities, https://www.planning.org/publications/document/9127204/

Metrics for Planning Healthy Communities[17]

Domain	Sub-Domain	Built Environment Assessment Indicators	Planning Policies
Active Living	Active Transportation	• Commute mode share • Ratio of sidewalk and/or bicycle lanes to roadway miles • Percentage of population living within a half-mile distance of frequent service transit stops • Street intersection density	• Transportation demand management policies • Legislation prioritizing funding for pedestrian/bike facilities • Complete Streets policies
	Recreation	• Network distance to park entrances and other usable public open spaces • Acres of park land per 1,000 population • Percentage of sites implementing shared use agreements	• Policies prioritizing equitable investment in parks and open space • Shared use policies between local governments, school districts, faith-based organizations, etc.
	Traffic Safety	• Annual rates of fatal and serious pedestrian and cyclist injuries	• Vision Zero or a similar initiative to end traffic fatalities • Traffic calming policies and related design guidelines

The US DOT, in partnership with the CDC, has developed its own Transportation and Health Tool. This online tool provides data for states and major cities on a set of transportation and public health indicators. The state of Maryland ranks above the 75th percentile in health performance due to its commute mode share, complete streets policies, transit trips per capita along with other high scoring performance metrics.[18]

The Livability Index provided by AARP also produces indices and scoring of neighborhoods and communities across the U.S. This index is centered around convenient transportation options for transit and walking, accessible system design, transportation costs, and safe streets.[19]

County Health Rankings & Roadmaps, a service through the University of Wisconsin Population Health Institute, provides health rankings at the county level. Rankings are determined by a series of health factors and outcomes. Statistics are provided for several factors related to length and quality of life, health behaviors, clinical care, socio-economic status, transportation, the physical environment. Maps comparing county performance are also available.[20]

[17] APA, Metrics for Planning Healthy Communities, https://www.planning.org/publications/document/9127204/
[18] US DOT and CDC, Transportation and Health Tool, https://www7.transportation.gov/transportation-health-tool
[19] AARP, Livability Index, https://livabilityindex.aarp.org/
[20] University of Wisconsin Population and Health Institute, County Health Rankings & Roadmaps, https://www.countyhealthrankings.org/

The Georgia Institute of Technology's Built Environment and Public Health Clearinghouse, provides and index of resources to provide data and analysis measures to support efforts to address public health in the built environment.[21] Another online platform that acts as a repository for resources, such as data and mapping tools and white papers, from a variety of sources is the Community Commons.[22] Areas of focus include both Health and Transportation.

DATA SOURCES

Data Sources

- Built Environment and Public Health Clearinghouse
- Community Commons
- Nation Transit-Oriented Development Database
- Housing + Transportation Affordability Index
- Location Affordability Index
- Transportation Alternatives Data Exchange (TrADE)

Collecting current and comprehensive data is a common challenge for evaluating the health of a community and measuring the effectiveness of interventions. Collecting quality data firsthand on a regular basis is typically cost prohibitive for local governments. Oftentimes existing data sources compiled by other organizations are relied upon rather than primary data collection methods. There are a variety of online data platforms and clearinghouses that have been developed by federal and state agencies, academic institutions, and non-profit organizations to make information more accessible. However, many of the national resources provide data for only select geographies, such as the most populous cities, metropolitan statistical areas, or statewide. This is especially challenging for smaller communities, which already tend to have fewer resources to devote toward robust data collection methods.

National programming and data sources are useful resources in promoting healthy communities. However, a participatory approach to data collection and measurement is a localized method that can increase understanding of active transportation levels and areas of need while simultaneously increasing community engagement. An article published by the Transportation Research Board reviews participatory data collection methods used in Austin, TX.[23] As an example, the Austin planning department utilizes an emerging smartphone platform that logs trips and solicits input on route quality.

PLAN DEVELOPMENT & PROJECT PRIORITIZATION

Incorporating public health in all aspects of planning, especially transportation, has become increasingly popular as experts, elected officials, and the public have become more aware of the interconnected ties between the built environment and community health outcomes. Although planning traces its origins to the goal of protecting public health, for many decades the profession moved away from this goal with a primary focus on designing auto-dependent communities that promoted unhealthy lifestyles and

[21] Georgia Tech, Built Environment and Public Health Clearinghouse, http://bephc.gatech.edu/data-and-assessment
[22] Community Commons, Maps and Data, http://www.communitycommons.org/collections/Maps-and-Data
[23] Griffin, G. and Junfeng Jiao, "The Geography and Equity of Crowdsourced Public Participation for Active Transportation Planning", *Journal of the Transportation Research Board,* vol. 2673, 1, 2019, https://journals.sagepub.com/doi/full/10.1177/0361198118823498

structural inequality through policies like redlining and urban renewal. Inclusive and equitable planning will be further discussed in the next section.

Many resources recommend incorporating public health priorities throughout all chapters of a plan, in addition to having a dedicated chapter on health. Oftentimes priorities, such as multimodal investment and transit-oriented development, are not explicitly related to the promotion of healthier outcomes. Similarly, the connection between public health and chapters typically included in comprehensive plans, such as transportation, parks and recreation, and the environment, are not articulated. By threading health priorities and measures of progress throughout all chapters, improvement to community health outcomes becomes better integrated into all aspects of planning and the responsibility of all governmental departments. In Dubuque, Iowa, the Community Health Needs Assessment and Health Improvement Plan are updated on the same cycle to allow the efforts to leverage and feed off each other. These documents are then utilized to inform the goals and objectives of the city's comprehensive plan.

As will be discussed in the section on interdepartmental collaboration, **the engagement of public health professionals should be a priority to ensure that health is threaded throughout all considerations of the planning process**. Reiterating the commitment to promoting healthier outcomes throughout planning documents also provides a strong foundation for grant applications by local government and community organizations making them more likely to receive funding due to the clear evidence of community support and political will.

There are many models for incorporating health into the project prioritization process. Some communities, such as in the Nashville, TN region, have identified priority areas where there are significant health discrepancies as a first step and offering more points to projects serving these communities. Additionally, factors in the scoring process that relate to health, such as safety and active transportation, can be weighted more than other factors to help prioritize projects that support healthier outcomes for the community. Another strategy, such as the current approach in Washington, DC, is to first identify areas with the greatest need for transportation improvements and then overlay these places with socioeconomic metrics to determine where interventions needed most could help those that have historically been marginalized, including people of color, low-income households, persons with disabilities, and those with low English proficiency.

By implementing a clear, data-driven process to prioritize and locate projects that takes into account health and equity considerations, it is possible to disrupt the potential for the "squeaky wheel getting the grease" and ensure areas most in need are given priority, rather than those best equipped to advocate for themselves. For more information regarding prioritization of projects, see the Task 2 Technical Memorandum on CIP Development.

DESIGNING HEALTHY COMMUNITIES

Vision Zero and Complete Streets are nation-wide efforts focused on ensuring roadways and streets of all types are inclusive and safe for all users – whether vehicular, pedestrian, cyclist, or transit rider.

URBAN DESIGN GUIDELINES

The New York City (NYC) DOT provides design guidelines to promote physical activity and health in design in its specific urban context; though these concepts can be applied to all communities. The document highlights five variables that promote physical activity and health in design:[24]

Density

- The concentration of jobs and people in a given urban zone

Diversity

- The number, variety, and balance of land uses

Design

- The characteristics of a neighborhood's street network and streetscape

Destination Accessibility

- The ease of travel to a central business district or other concentrated area of jobs and attractions

Distance to Transit

- The average distance from home or work to the nearest rail stations or bus stop

There are five design qualities that are critical to a good walking environment included in the NYC DOT Active Design Guidelines:

Imageability	The quality of a place that makes it distinct, recognizable, and memorable. A place has high imageability when specific physical elements and their arrangement capture attention, evoke feelings, and create a lasting impression.
Enclosure	The degree to which streets and other public spaces are visually defined by buildings, walls, trees, and other vertical elements
Human Scale	Size, texture, and articulation of physical elements that match the size and proportions of humans and, equally important, correspond to the speed at which humans walk
Transparency	The degree to which people can see or perceive objects and activity – especially human activity – beyond the edge of a street
Complexity	The visual richness of a place. The complexity of a place depends on the variety of the physical environment

[24] New York City, Active Design Guidelines: Promoting Physical Activity and Healthy Design, https://www1.nyc.gov/assets/planning/download/pdf/plans-studies/active-design-guidelines/adguidelines.pdf

The guidelines provide a checklist of design elements to include in a project to promote physical activity related to the following topics:

- Traffic Calming
- Designing Pedestrian Pathways
- Programming Streetscape
- Bicycle Networks and Connectivity
- Bikeways
- Bicycling Infrastructure

The full design checklist can be found on page 68 of the NYC DOT Active Design Guidelines.

COMPLETE STREETS IN RURAL COMMUNITIES

In rural areas, the same principles of Complete Streets apply, though multimodal design elements will look different in rural environments than they do in their urban counterparts. An article by Smart Growth America outlines the existing challenges to designing roadways for all users in rural areas and gives a list of recommendations and opportunities to improve multimodal conditions in the rural context.[25] Complete Streets in rural communities can be used to revitalize a town's Main Street adding to the unique character of a place and increasing small business and economic development. Shared-use paths create an environment that encourages biking and walking and can showcase the natural landscape of an area.

One design consideration that can deter biking in rural areas is the use of rumble strips without a wide shoulder for roadways. According to a webinar organized by Vermont's Agency of Transportation featuring representatives from Smart Growth America, AARP, and the National Complete Streets Coalition, research shows that roadways with a speed limit at 40 mph or less, 10- to 11-foot travel lanes are the safest width for all users. In those instances, there is an opportunity to restripe the edgeline of a road to create a wider shoulder for bicyclists. Where applicable, and if four or more feet of shoulder exists, shoulders can be marked as bike lanes.[26] This low-cost implementation can decrease crash rates by 35%. More information on specific rural design, planning and programing considerations can be found in the Rural Strategies section of this report.

CASE STUDY: FORT WORTH, TX ANNUAL COMPREHENSIVE PLANNING PROCESS

Public health has been a primary focus in Fort Worth's comprehensive planning process since 1998, in part due to a new planning director with a personal interest in the nexus between planning and public health. The commitment to planning for a healthier community was further supported during the 2000s by the North Central Texas Council of Governments, which incorporated healthy planning in its 12 Principles of Development Excellence and creation of Vision North Texas, which brought together public and private stakeholders from across the region with the focus of planning for a healthy and sustainable future. The planning director and Tarrant County's director of public health were both very involved in this effort and formed a close relationship.

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[25] Smart Growth America, Complete Streets Work in Rural Communities, http://old.smartgrowthamerica.org/documents/cs/factsheets/cs-rural.pdf

[26] Smart Growth America, AARP, National Complete Streets Coalition & Vermont Agency of Transportation, Implementing Complete Streets in Small Towns and Rural Communities in Vermont, https://d3n8a8pro7vhmx.cloudfront.net/localmotion/pages/3908/attachments/original/1527731499/AARPVT_Webinar-RURALcompletestreets.pdf?1527731499

After the first major update to the City of Fort Worth's Comprehensive Plan in 2000, the City Council authorized City staff to update the plan annually so that it remains a current and useful guide for decisions on growth and development. The twenty-first update to the plan was adopted in March 2021.[27] In addition to the annual updates to the Comprehensive Plan, the planning director instituted a biannual Progress and Priorities Report to be provided to city council to report on all capital improvement projects completed over the previous two years and demonstrate how city funds have been utilized. However, the most recent report publicly available is from 2015.

Updates to the plan include: updating demographic, employment and financial trends to reflect the latest data available; incorporating new data and policy directions from recently adopted plans such as active transportation plans, housing strategic plan, and complete streets policies; adding newly adopted plans to the appendix on existing plans; updating the future land use map to reflect approved zoning changes and new development plans; updating the proposed capital improvement plan; and updating the annexation plan to reflect any recent changes to the program.

The planning process is a continuous sequence of activities taking approximately one year to complete. There are opportunities for input into the process at all stages. (Source: Planning & Data Analytics, 2021.)

In addition to offering up-to-date guidance, another benefit of frequently updating the plan is the consistent collaboration between departments. **For the 2021 Comprehensive Plan Update, each individual department was responsible for developing and implementing the objectives for their respective chapters, while a senior planner was responsible for providing overall coordination of the**

[27] City of Fort Worth, TX, 2021 Comprehensive Plan, https://www.fortworthtexas.gov/departments/planning-data-analytics/comprehensive-planning/comprehensiveplan/adopted

departmental efforts to ensure they were aligned and not redundant. The Tarrant County Public Health Department was engaged early in the process to ensure that a public health lens was applied throughout the plan, in addition to a dedicated chapter on health. While the plan was being drafted, the planning department shared the content with the public health department for review and to help expand the focus on health.

The ongoing partnership on the comprehensive planning process provides a foundation for continued collaboration on other planning efforts as well. Other opportunities for collaboration identified by Fort Worth planning staff include responding to disasters and emergency, such as the interdepartmental approach the City took to designing a prevention strategy for the West Nile virus, and when applying for grant funding, even if the grants are not successful. For example, the Fort Worth Planning and Development Department and the Tarrant County Public Health Department partnered together on an application for a Community Transportation Grant. Although they were not awarded funding, the departments opted to go ahead with pursuing the ideas that had been proposed together. Another avenue for collaboration includes the participation of a representative from the City planning department in the health department's task force on livable, walkable communities that is part of their Live a More Colorful Life program.[28]

Case Study Key Takeaways

- Frequent comprehensive plan updates allow for up-to-date guidance on project prioritization
- Engage public health officials from the start to provide an expert health lens throughout the planning process
- Leverage project-based opportunities for interdepartmental collaboration to foster long-term relationships

CASE STUDY: NASHVILLE AREA METROPOLITAN PLANNING ORGANIZATION (MPO) PROJECT PRIORITIZATION PROCESS

The Nashville region has experienced significant economic and population growth over the last decade. However, with these trends has come increased traffic congestion and rising housing costs. Despite the creation of thriving town centers in some jurisdictions, the region overall lacks adequate sidewalk connectivity and multimodal transportation options. Additionally, health indicators show that the region has high levels of obesity and physical inactivity. Since the adoption of the MPO's long-range transportation plan in 2010, there has been growing demand from local leaders, business owners, and residents to improve bicyclist and pedestrian safety. As a result, the Nashville Area MPO sought to address these issues by increasing the investment in active transportation and directing improvements to places with the greatest positive impact on health, social equity, and infrastructure usage.

[28] APA, Healthy Plan Making, https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/research/publichealth/pdf/healthyplanningreport.pdf

To do this, the MPO redesigned their project scoring process for their 2015 long-range transportation plan to prioritize projects that maximize positive public health outcomes. Considerations relating to health, safety, and social equity considerations were incorporated into the project selection process. To inform the prioritization process, the MPO conducted two studies in advance to better understand disease prevalence, active transportation rates, and other health-related behaviors of residents, as well as the propensity for walking and bicycling across the region:

- The Middle Tennessee Transportation and Health Study in 2012 was designed in partnership with the public health experts and cost $1.5 million. Approximately 6,000 households completed a household travel survey that included a travel diary and questions on health conditions. An expanded questionnaire was provided to 600 households, which also wore a GPS for four days. One adult in each of the 600 households also wore an accelerometer for the four days to provide health-related data on walking and biking activities and the level of intensity. Based on the data collected, four demographic characteristics were identified as being the most highly correlated with poor health: being impoverished, unemployed, over the age of 65, and not owning a car. Census block groups with a higher than average rate in three of the four characteristics were classified as a "Health Priority Area." Partners on the study design included the University of North Carolina at Chapel Hill, Metropolitan Nashville Health Department, the CDC, and Westat/Geostats. The neighboring Clarksville Urbanized Area MPO also participated to provide a more comprehensive picture of regional travel.
- The Non-Motorized Demand and Physical Activity Assessment of the MPO's 2014 Bike and Pedestrian Study identified places where trips by bicycle and on foot were more likely to occur, typically mixed-use and densely developed areas.

The results of these studies guided the development of a new 100-point transportation project scoring process used in the 2040 long-range transportation plan. Eight factors were identified and weighted by priority. Of the 100 points, 80 related to public health, safety, or social equity, offering an advantage to projects providing the greatest positive impact. In the previous scoring process, only 60 of the 100 points related to these areas. Active transportation projects in the "Health Priority Area" block groups identified in the MTTHS were prioritized by awarding up to 11 more points that were not available to projects not located within the priority areas. Similarly, projects located in the areas identified in the Non-Motorized Demand and Physical Activity Assessment with greater propensity for bicycling and walking. This allowed the MPO to achieve more bang for the buck by prioritizing projects in locations that were more likely to be utilized.

Scoring Factor	Total Points
Safety and security to reduce crashes, fatalities, and injuries by all modes of transportation	20
Quality growth in an area with existing population and employment centers	15
Multimodal improvements that provide transit, bicycling, and walking options	15
Congestion management to mitigate existing or anticipated traffic congestion with motorized and non-motorized improvements	15
Environmental and health to provide vulnerable populations with active transportation options and mitigate negative environmental impacts	15
Preservation and enhancement of the existing transportation system	10

Freight and goods movement to move freight traffic efficiently and safely in areas with high commercial vehicular activity	5
Project support and history to ensure that a proposed project is a local priority and will move forward in a timely manner	5

To help message the potential health benefits of projects, the MPO collaborated with the CDC on an online platform, the Integrated Transportation and Health Impact Modeling Tool, that models multiple scenarios to demonstrate how an increase in active transportation could result in lower rates of twelve chronic diseases and respiratory conditions. For example, in one scenario if the average resident walked 82 minutes and biked 12 minutes per week, 112 deaths resulting from chronic diseases per year could be averted. The gain in productivity and reduced direct treatment cost from fatalities, injuries, and disabilities avoided could result in a $116 million savings annually. Translating the potential project benefits into more tangible results from both a public health and economic perspective helped bolster support for prioritizing active transportation projects.

As a result of the change in the prioritization process, 77% of funded projects in the 2040 Middle Tennessee Connected Plan had a bike and/or pedestrian element. Over the 25-year plan cycle, approximately $206 million was dedicated specifically to active transportation projects and $1 billion towards road reconstruction projects that included multimodal upgrades. The driver of this substantial increase in funding was the change in policy and funding criteria to consider health and bike/pedestrian infrastructure and programs as part of the mainstream decision process, rather than add-ons requiring special funding sources.[29]

Case Study Key Takeaways:

- Recognizing the lack of sidewalk connectivity and multimodal transportation options across the region, coupled with high levels of obesity in physical inactivity, prompted the MPO to prioritize projects that supported active transportation and healthier outcomes
- Incorporating health considerations into the project scoring process substantially increased the amount of funding dedicated to active transportation projects
- Translating potential project benefits into health and economic impacts helped bolster support for active transportation
- Costly data collection methods used to inform the health and equity considerations incorporated in the scoring process make frequent updating challenging

[29] American Public Health Association & Transportation for America, Case Study: Nashville, TN Prioritizing Public Health Benefits Through Better Project Evaluation, https://t4america.org/wp-content/uploads/2016/09/Nashville-Case-Study.pdf

ENCOURAGING EQUITABLE HEALTHY COMMUNITIES

EQUITABLE PLANNING

Equity refers to the fair distribution of and access to resources. It does not mean equality, which refers to everyone receiving the same treatment. Equity is based on access, which is different depending on one's life circumstances. Past approaches to planning have left behind an ongoing legacy of segregated, underserved communities, typically comprised of racial and ethnic minorities, that have received an inequitable distribution of health hazards and public and private investment. This has resulted in an extreme health disparity that many communities and organizations are now working to resolve. As discussed in the previous section, an effective approach for ensuring investments are distributed equitably is to incorporate socioeconomic characteristics in the project prioritization process. Doing so helps to avoid the potential for the "squeaky wheel getting the grease" where more vocal residents receive more attention due to having more resources to advocate for themselves compared with communities with less capacity to engage.

To identify areas lacking adequate access to services and amenities, some communities have developed equity atlases, which can also be used for guiding decisions on where to locate investments to ensure a more equitable distribution of resources and promote healthier outcomes for those in need. The City of Charlotte, where housing affordability is a pressing concern due to rapid growth in recent years, developed a Built City Equity Atlas to inform their 2040 comprehensive planning process and provide an equity lens to the analysis of the built environment. The goal of the atlas is to evaluate what is needed and where. The atlas maps several characteristics, including homeownership, racial density, education, poverty, unemployment, and life expectancy.[30] This allowed for the consideration of vulnerability to displacement and accessibility to be incorporated into the comprehensive plan's equitable growth framework.[31] The BMC's Vulnerable Populations Index provides a similar function and can also be utilized by its member jurisdictions to screen potential project locations to help target investments and address existing disparities in access to services and amenities that support healthier lifestyles.

Other Equity Atlases:

- Austin, TX
- Delaware Valley Region, PA-NJ
- Portland, OR
- Tacoma, WA
- San Antonio, TX

The National Equity Atlas, a data and policy tool created by PolicyLink and the University of Southern California Equity Research Institute, is a continuously updated resource that provides information on 30 socioeconomic indicators to track, measure, and make the case for racial equity and inclusive prosperity for the largest 100 cities, 150 regions, and all states.[32] Additionally, the tool's Racial Equity Index offers a snapshot to compare how areas are doing from an inclusivity and prosperity standpoint in comparison to other areas.

[30] City of Charlotte, Built City Equity Atlas, http://ww.charmeck.org/Planning/CompPlan/Charlotte_Equity_Atlas.pdf
[31] City of Charlotte, Charlotte Future 2040 Comprehensive Plan Equitable Growth Framework, https://www.cltfuture2040plan.com/content/13-equitable-growth-framework
[32] PolicyLink/USC Equity Research Institute, National Equity Atlas, https://nationalequityatlas.org/

Applying a social justice or equity framework is an approach for helping to contextualize a project within the community by asking probing questions to help understand how a project may impact the surrounding community. The table below provides a sample of questions to consider during the planning and implementation process. It is based on the Racial Justice and Equity Framework developed by the Midwest Academy and has been adapted to focus on trail development but could be applied to other active transportation project types as well.

Sample Social Justice Framework[33]

Goals	Organizational Considerations	Constituents & Allies	Tactics
Long Term: • Are you challenging traditional assumptions about trail users? • Are you planning the trail for the current residents of the neighborhood? **Intermediate to Short Term:** • Will the trail impact some groups differently than others?	**What you have/need:** • Does leadership reflect your constituency? • How will you engage all impacted communities in goal-setting? • How will staff be supported to carry out goals?	**Building Support:** • Are you building multiple constituencies? • Are there factors that make it difficult for certain groups to participate? • What are the cultural factors to consider? • Does the trail project have opponents?	**Outreach and Engagement:** • Are your tactics culturally appropriate? • Do your tactics work to build community around the trail? • How will your tactics be received by the community you hope to engage? • How will you talk about inclusion and equity on the trail? • Will you need translation?

INCLUSIONARY PLANNING

Traditional planning processes have historically catered to those with time, resources, and awareness of the capital improvement process. For inclusionary planning, practitioners must consider access not only to the physical space when designing projects, but also access to the planning process to ensure the people the project is aiming to serve are able to meaningfully engage. While the approach to inclusionary planning will vary from project to project based on community needs and characteristics, support from community groups and leaders is always critical. Proactively building relationships with community groups and leaders also helps increase the community's capacity to address other needs of the neighborhood and allow for continued partnership beyond the project.

Incorporating the evaluation of inclusiveness in planning and the equitable distribution of resources to prioritize communities with the greatest need should be viewed as an institutional change to make it part of the organizational culture and challenge the status quo. The success of implementing an inclusive planning process is dependent on the willingness to prioritize engaging the community for meaningful participation throughout all stages of the process, from project inception to completion and beyond, to ensure the new infrastructure or facilities are embraced, maintained, and utilized by the community in

[33] Pennsylvania Environmental Council, Inclusionary Trail Planning Tool Kit, https://pecpa.org/wp-content/uploads/Inclusive-Trail-Report.pdf

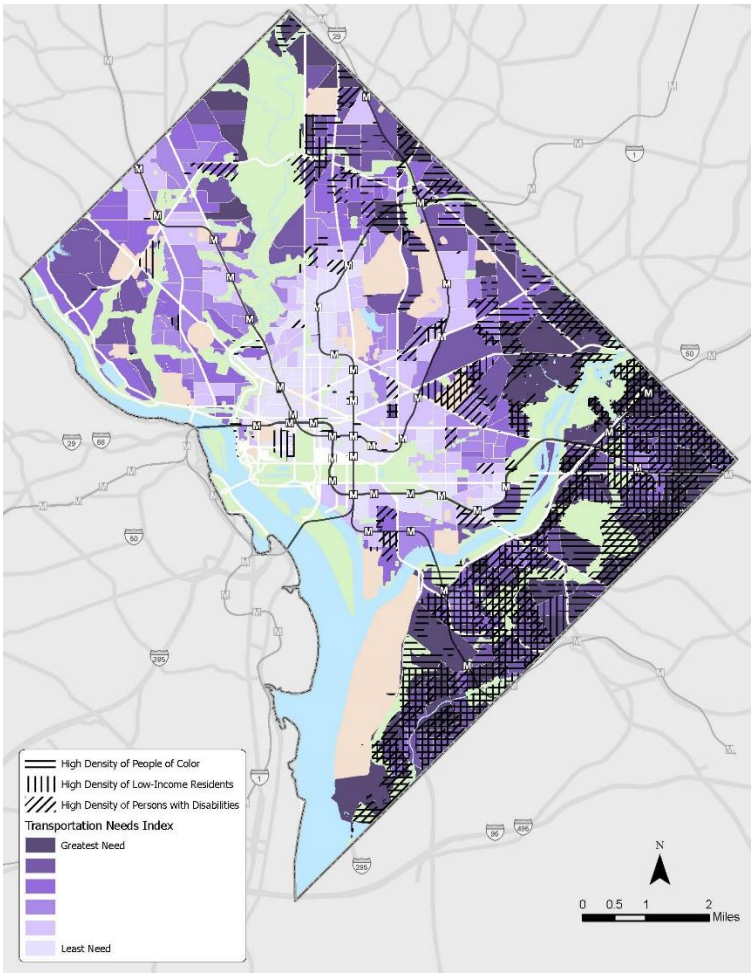
the long-term. Hiring a staff member or consultant who is responsible for inclusive engagement should be considered, as adding these responsibilities to an employee with a full workload is unlikely to result in the necessary time required. **Additionally, education and training on confronting personal prejudices and implicit or unconscious biases should be incorporated in professional development to ensure practitioners are able to be most effective in including those historically underrepresented in traditional planning processes.**

CASE STUDY: DISTRICT DOT – MOVEDC 2021 UPDATE

The District of Columbia's long-range transportation plan, moveDC, provides a recent example for incorporating equity into the transportation planning process. The District DOT (DDOT) analyzed the transportation network for walking, biking, transit, and vehicles to identify where there is need for improvement. The plan utilizes a mapping exercise to ensure the District is making investments and improvements to address needs in historically marginalized communities. Proximity to frequent transit, access to jobs and destinations, and safety risks were three categories assessed to identify where transportation improvements are needed.

Proximity to Frequent Transit	Access to Jobs and Destinations	Safety Risks
This index measures areas of the District that have access to transit stations and stops with high service frequency (pre-COVID levels) as follows: **Access to Rail** – areas within ½-mile walking distance of rail stations with train frequencies of 5 minutes or better during peak and midday **Access to Bus** – areas within ¼-mile walking distance of bus stops with bus frequencies of 10 minutes or better during peak and midday *Areas with **lower access** to frequent transit have a **greater transportation need**.*	This index measures areas of the District that have access to jobs and key destinations as follows: **Access to Jobs** – jobs in the region that can be reached: **Access to Destinations** – destinations in the region that can be reached: • Within a 20-minute walk • Within a 30-minute bike ride on low-stress streets • Within a 30-minute bus ride • Within a 30-minute train ride • Within a 45-minute train and bus ride (that involves a transfer from one to the other) • Within a 45-minute drive *Areas with **lower access** to jobs and destinations have a **greater transportation need**.*	This index measures areas of the District based on proximity to safety risks as follows: • High-stress/low-comfort cycling routes • Sidewalk gaps • Vision Zero high-crash corridors *Areas that are **closer** to safety risks have a **greater transportation need**.*

Following the needs assessment, the resulting map combines these three inputs and presents the overall levels of transportation needs across the District. This assessment is centered around needs and deficiencies in the transportation network and does not assume that all historically marginalized communities face greater needs by default. However, overlaying sociodemographic and socioeconomic information onto the map post-assessment presents clear overlaps in the areas of greatest need and historically marginalized communities such as people of color, low-income residents, persons with disabilities, and residents with low English-proficiency. This analysis will enable the District to prioritize investments to improve and strengthen areas with the greatest needs and target disparate system outcomes to provide a more equitable transportation network.



Case Study Key Takeaways

- Metrics, data, and mapping tools can be utilized to understand and document the clear overlap between areas of greatest needs and distribution of historically marginalized communities.
- Reliance on data-driven and context-mindful assessments instead of presupposed assumptions can help ensure the fair distribution of and access to transportation resources.

MITIGATING RISK OF DISPLACEMENT AND GENTRIFICATION

In addition to concerns stemming from a history of being left out of the planning process, the recent resurgence and renewed investment in urban areas can often be seen as a threat by longtime residents of neighborhoods that have historically been neglected by public and private investment after decades of a strong focus on enhancing communities outside the inner city. As many inner-city neighborhoods are being prioritized for improvements, including greater walkability and transit access and better quality housing, the area becomes more marketable, resulting in increased property values. These

enhancements often drive up the cost of living, resulting in many of the existing residents being priced out and unable to benefit from the improved quality of life.

A first step to mitigating risk of displacement that results from improving the quality of life, whether it be via active transportation, transit, or other types of projects, is to create an inventory of existing policies and programs that address displacement. These typically fall into three categories referred to as the 'Three Ps': protection, production, and preservation. Protective strategies include efforts to stabilize rents and requiring landlords to have just cause to evict. Production strategies increase the stock of affordable housing. This could include land banking, inclusionary zoning, housing trust funds, and right to return policies, which give preference in affordable units in the area to those who have already been displaced. Preservation of existing affordable units is often more cost-effective than building new units, especially in places already built out. The table below from the University of California Berkley Urban Displacement Project provides an overview of sample policies and programs.[34]

	Protections	Preservation	Production
Proactive	Landlord anti-harassment protections	Acquisition/rehabilitation	Inclusionary zoning
	Just cause for evictions ordinances	Community Land Trusts	Targeted tax allocation districts
	Rent regulation	Proactive code enforcement	Public lands for affordable housing
	Tenant counseling	Source of income (voucher) anti-discrimination legislation	Land banking for affordable housing
	Rental assistance		Density bonus
	Supports for renters to become homeowners		Accessory Dwelling Units (ADUs)
	Homeownership counseling		Public/social housing
	Mobile home rent stabilization		Housing trust funds (including regional entities)
	Right to counsel		Bonds for affordable housing construction
			Impact fees and commercial linkage fees
Responsive	Relocation benefits	Acquisition/rehabilitation triggered by threat of displacement	Right to Return/Preference Policies
	Tenant right to counsel	Right of First Refusal	"Ban the box" policies
	No net loss and one for one replacement	Retain expiring-subsidy units (create supportive financing vehicles)	ADU support conditional on renting to voucher-holders
		Condominium conversion restrictions	

[34] University of California Berkley Urban Displacement Project, Investment without Displacement: From Slogan to Strategy, https://www.urbandisplacement.org/blog/investment-without-displacement-slogan-strategy

		Vacancy control in rent regulations	
		Single-room-occupancy (SRO) preservation ordinance	

Once the inventory of existing policies and programs is developed, a gap analysis can be conducted to identify additional strategies that should be explored to mitigate against the negative impacts of neighborhood change. In the last couple of years, as affordability has become an urgent concern in communities across the country, several cities have developed a formal anti-displacement strategy to help existing community members remain in their neighborhoods and benefit from quality of life improvements. These strategies typically include a citywide displacement vulnerability assessment, engagement with community leaders and residents, research of best practices, and recommendations for policies and programs to implement. Most have been adopted within the last two years thus it is still early in the process to evaluate their success.

Anti-Displacement Strategies:

- Austin, TX
- Providence, RI
- San Jose, CA
- Vancouver, WA

When planning any project aimed to improve quality of life, it is important to acknowledge the risk of displacement due to costs rising in response to the increase in market attractiveness and proactively work to prevent it. Ideally, protective policies will be in place before an investment is announced to get ahead of property values rising in response to proposed improvements. Utilizing tools such as the BMC's Vulnerable Population Index or an equity atlas will help assess the risk of displacement in the area surrounding a potential project location. The impact assessment regarding displacement should be performed as early in the planning process as possible so the findings may be incorporated early on. The Prevention Institute has created a list of risk and resilience factors that contribute and safeguard against displacement by gentrification to understand how a community may be threatened by specific projects.[35]

[35] The Prevention Institute, Healthy Development Without Displacement: Realizing the Vision of Healthy Communities for All, https://preventioninstitute.org/publications/healthy-development-without-displacement-realizing-vision-healthy-communities-all

	Community Level	Individual Level
Risk Factors (characteristics associated with increased susceptibility to displacement)	• Geographic adjacency to high-value or gentrifying neighborhoods • High proportion of renter-occupied housing • Lack of strong tenant protection policies, especially rent control • Little to no subsidized public housing stock • Existing public transit infrastructure • Public infrastructure developments (e.g., new transit in historically divested communities) • Low density development that could be made more dense • Speculative real estate practices • Selective or spot zoning that grants zoning exceptions or variances on a project-by-project basis • Real and/or perceived improvements in community safety • Concentration of low-income households and non-White populations	• Low income or rent-burdened households • Lack of home/property ownership • Lack of household wealth • Low levels of educational attainment • Unemployment, under-employment, or barriers to employment (e.g., lack of childcare, physical or mental impairment, history of incarceration, language barrier)
Resiliency Factors (characteristics that counteract risk factors and bolster community stability and health, helping to prevent displacement)	• Equity as a guiding principle for all land use decisions • Meaningful community engagement in planning and decision-making processes • Community connectedness and collective efficacy • Community organizations that organize residents, build their capacity and leadership skills, and/or produce or preserve affordable housing • High proportion of owner-occupied housing and businesses • Monitoring and enforcement of strong tenant protection policies	• Opportunities for meaningful community engagement in policymaking, planning, and budgeting processes • Opportunities to strengthen and grow financial and social capital • Home/property ownership • Intergenerational household wealth • Job/income stability and good paying wages

An interactive activity on development without displacement was created by The Greenlining Institute that can be utilized by departmental staff and/or with neighborhood residents to design an anti-displacement plan that is appropriate for the community once the risk and resiliency factors have been

identified. A set of policy options, cards, and a game board are provided to guide participants through the visioning process.[36]

RURAL STRATEGIES FOR PROMOTING EQUITABLE, HEALTHY COMMUNITIES

As with all planning efforts, considering the context of the community is key. The issues facing urban areas, the appropriate strategies for addressing them, such as the different design guidelines previously mentioned, and metrics used to measure results are often not applicable in rural settings. While the issue of accessibility is still a key challenge, trips on bike or foot are often not realistic for most community members in less densely developed areas due to the distances between origins and destinations. In rural areas, the built environment's role in promoting more equitable and healthier communities is primarily related to access to key services, such as healthcare, and robust trail networks and recreational opportunities to support physical activity.

TRANSIT IN RURAL COMMUNITIES

In rural areas, transit plays a key role in supporting healthy communities because in some instances, biking and walking to health appointments or recreational areas are not an option. For those without access to a personal vehicle, the rural transit network becomes the primary mode of travel to facilitate health related necessities and opportunities. The demographics of transit riders changes in the rural context. A study completed by Minnesota's Center for Rural Policy and Development, compares ridership data in the Twin Cities against smaller communities and rural areas. The study found that while three fourths of transit trips in the Twin Cities are for work or school, more rural areas have less work/school commuting trips and a proportionally higher number of trips by seniors and persons with disabilities accessing essential services.[37]

Metro Magazine provides a series of case studies that show innovative and creative strategies for providing transit in rural areas.[38] One case study demonstrates how key stakeholder partnership and involvement can enable transit access to health care and other essential services. Greenway Public Transportation in Conver, North Carolina collaborated with county municipalities, government leaders, the Community Foundation of Burke County, representatives from the manufacturing and industry sectors, and non-profit organizations over a three year period to create solutions to extend coverage in high rural areas and provide service to underserved riders. Stakeholders played a key role, writing and applying for Federal and State Grant funding and coordinating to get bus stops near affordable housing and in low-income neighborhoods. A "ride-free" promotional period and advertisements by the local public housing authority helped spread awareness of the new flex-routes. Once updated, the route became a staple for the low income population traveling to and from the local integrated health facility.

[36] The Greenlining Institute, Equity Lab Toolkit: Development without Displacement, http://greenlining.org/publications/online-resources/2019/equity-lab-toolkit-development-without-displacement/
[37] Minnesota Center for Rural Policy and Development; Rural Reality: City Transit, Rural Transit; https://www.ruralmn.org/rural-reality-city-transit-rural-transit/
[38] Metro Magazine; Progressive Rural Transit Services Offer Lessons in Mobility, Access for All; https://www.metro-magazine.com/10112022/progressive-rural-transit-services-offer-lessons-in-mobility-access-for-all

A webinar hosted by the National Rural Transit Assistance Program (RTAP), discusses best practices related to Rural Transit Planning in the Time of COVID and Beyond.[39] In rural areas, the webinar recommends that fixed routes that traverse the same roadway going out as going in have more success than one-way loop routes that might have wide coverage but create unrealistic travel times. Incorporating flex routes, where a vehicle makes stops along the way for specific ride requests is another strategy that can support more rural areas. For a route that gets less than 6 riders per vehicle hour, microtransit might be more appropriate.

Because of ridership numbers in rural areas, microtransit becomes a more viable option than high frequency bus service. The company Via has formed partnerships with communities in the Southeastern US to modernize transit services through On-Demand Microtransit.[40] Via and other for-profit transportation companies offers creative ways to fund on demand public transit through utilizing federal, state and local funds in different capacities.[41]

The Rural Health Information Hub (RHIhub) provides a Rural Transportation Toolkit.[42] The toolkit provides an overview of active transportation models for rural communities, which shares resources and case studies applicable to rural areas.[43]

PROMOTING PHYSICAL ACTIVITY IN RURAL COMMUNITIES

Though ensuring healthcare and healthy food access to those who need it most through rural transit strategies is an important piece to the puzzle, promoting physical activity through the built environment is also attainable in rural communities. An article by the APA summarizes evidence that rural communities desire better walkability in small towns and cities and illustrates the benefits of investing in ped and bike infrastructure in rural communities, including improvements relating to Main Street revitalization, sidewalk connectivity, and traffic calming measures.[44]

One strategy to promote physical activity in rural areas is to convert existing rail corridors into shared-use walking and biking recreational trails. Rails-to-Trails Conservancy supports local and state agencies in implementing these types of projects. West Virginia, Pennsylvania, and Nebraska are a few states that have successfully built rail-trail systems. Benefits of rail-trail systems include:

- Increased tourism
- Increased property values
- Lower crime rates around the rail corridor

[39] RTAP, Rural Transit Planning in the Time of COVID and Beyond, https://www.youtube.com/watch?app=desktop&v=ALCgkmKcofM
[40] Via, Microtransit for Old Town Roads: Planning and Funding Rural On-Demand Transit in the Southeast, https://ridewithvia.com/resources/articles/microtransit-for-old-town-roads-planning-and-funding-rural-on-demand-transit-in-the-southeast/
[41] Via, Creative Ways to Fund On-Demand Public Transportation and Microtransit in 2021, https://ridewithvia.com/resources/articles/creative-ways-to-fund-on-demand-public-transportation-and-microtransit/
[42] RHIhub, Rural Transportation Toolkit, https://www.ruralhealthinfo.org/toolkits/transportation
[43] RHIhub, Active Transportation Models, https://www.ruralhealthinfo.org/toolkits/transportation/2/models-to-improve-safety-or-infrastructure/active-transportation-models
[44] APA, Getting Rural America Back on Its Feet, https://www.planning.org/planning/2019/dec/backonitsfeet/

- Opportunity to enjoy natural surroundings

The Nonmotorized Transportation Pilot Program is a federal program with grant funding dedicated to promoting, improving and evaluating pedestrian and bicycle infrastructure.[45] Sheboygan County in Wisconsin was one of the pilot programs which received $25 million to "develop a network of non-motorized transportation facilities that connect neighborhoods, retail centers, schools, recreation amenities, and employment centers and will allow people to change the way they choose to move around through their daily lives."

Some communities have had great success in developing Safe Routes to School programs in rural areas. A project in the City of Galax, Virginia developed a "Bike Library" system for students in their community in 2013. The idea, which came from the Public School's Board Chairman, was to create a library for children to come and 'check out' bikes and helmets. Since its creation, the program has grown significantly. Nearly a quarter of the community in Galax, Virginia live in poverty. This program has given people an opportunity to get physically active and reconnect with their community through the joy of bike-riding. **More than 145 students and parents have checked out equipment from the library, not counting the number of students who have participated in bike rodeos, bike rides, and bike riding lessons in the schools and on the Parks and Recreation Department grounds.**[46]

Another Bike-Library Program, in Allen County, Kansas, which has a population of 13,000 people, developed a "Bike Library" pilot program through Blue Cross Blue Shield of Kansas grant funding. The program's focus is on providing biking opportunities and access to low-income residents. The Bike-Library Program began after an increase in bike infrastructure investment from the city. Community members recognized the existing barrier to bicycling that went beyond bike infrastructure, namely bike ownership, and the library program was developed. This program was awarded the Robert Wood Johnson Foundation Culture of Health Prize and can serve as a model for rural bike-ability and inclusion practices.[47]

CASE STUDY: LIVABLE STREETS IN WARSAW MISSOURI

In recent history, Warsaw, Missouri, which has an aging population of 2,100 people, was an economically depressed area with high rates of chronic disease. The area lacked access to natural resources and multi-modal connections. However, over the last 20 years, through leadership of the city administrator, the town has worked tirelessly to develop innovative strategies to improve connectivity and revitalize its attractions and unique characteristics. This case study demonstrates how rural areas can equally benefit from pedestrian and bicycle planning efforts as their more urban counterparts.

In 2006, the Warsaw Trail Masterplan outlined its vision for a trail network to connect the downtown area of Warsaw with waterfront parks. The town collaborated with Missouri DOT to connect its growing comprehensive trail network to on-street bicycle facilities and Safe Routes to School sidewalk

[45] US DOT FHWA, Nonmotorized Transportation Pilot Program, https://www.fhwa.dot.gov/environment/bicycle_pedestrian/ntpp/
[46] PlayCore, Case Study: Rural Virginia Community Rediscovers the Joy of Bike Riding, https://www.playcore.com/news/case-study-rural-virginia-community-rediscovers-the-joy-of-bike-riding
[47] National Center for Mobility Management, Bikeshare is for Rural Communities Too, https://nationalcenterformobilitymanagement.org/blog/bikeshare-is-for-rural-communities-too/

improvements. The town prioritized the basics in pedestrian infrastructure, which many rural communities lack sidewalks, crosswalks, and traffic calming measures. The trail system that has been implemented over the last 15 years has brought in over $4.5 million in private investment: from coffee shops and restaurants to bicycle shops.

Then in 2016, the town passed a Livable Streets Policy, their version of Complete Streets, with the goal of making walking and biking viable modes throughout the downtown area. Even with a limited budget and small jurisdictional staffing size, the town has had success through utilizing another approach utilizing the term the "three Ps":

Planning	Partnerships	Personnel
The town has put a large emphasis on collaboration in the planning process. The town gathered staff, community members and landscape architecture students from the local university to complete a visioning exercise for the future trail network that engineers later refined plans from. Results from this exercise helped the town obtain grant funding and raised public awareness and enthusiasm for the plan.	The town has formed strong partnerships with MoDOT and the Army Corp of Engineers. The Army Corp of Engineers has helped the town obtain grant funding by writing strong letters of endorsements. MoDOT and the town of Warsaw have worked together to add buffered bike lanes on roadway shoulders and implement sidewalk improvements.	The town held Park Department staff training to equip personnel to construct and maintain their own trail projects. It gave staff a sense of ownership on these projects and a sense of pride in how they would benefit the community.

Even with these strategies in place, larger grants are out of reach because of the town's small size. Town staff have adapted by pursuing smaller funding sources and building out its trail network by 1,000-foot increments. Over the last two decades, the town has been awarded 45 grants that have brought over $9 million in federal funds and $2 million in local funds.

Since these transportation improvement efforts: the trail network and Livable Streets policies and programming, the City has become the fastest growing area in the county. Business and tourism are increasing and expanding. Furthermore, the health of residents has increased, with the town seeing a 12% decrease in childhood obesity in recent years. Public perception of multi-modal travel has been transformed from significant hesitancy over bicycle and pedestrian projects to strong support from the community. The waterfront trail and pedestrian improvements have become fundamental to the identity of Warsaw, Missouri.[48]

[48] Smart Growth America, The Best Complete Streets Initiatives of 2017, https://smartgrowthamerica.org/wp-content/uploads/2018/03/Best-Complete-Streets-Initiatives-of-2017.pdf

Case Study Key Takeaways:

- Since most residents will depend on vehicular transportation for most trips in rural areas due to less dense development patterns, providing biking and walking infrastructure in recreational destinations and downtown areas should be a focus to offer opportunities for physical activity.
- Collaboration across government levels and agencies, the public, and local academic institutions in the planning process can help ensure an innovative approach.
- Strong partnerships with other jurisdictions and training of local staff helped with effective completion of projects and instill a sense of pride in how projects were benefiting the community.

FUNDING PROJECTS TO SUPPORT HEALTHY COMMUNITIES

MIX OF FUNDING SOURCES

Lack of sufficient funding to plan for and implement active transportation projects and other improvements to promote healthier lifestyles is a common barrier and core challenge for communities across the country. Local funding dedicated for planning initiatives focused on public health are rare. To fund initiatives, oftentimes it is necessary to cobble together funding from multiple sources. Several communities have been successful in creatively leveraging federal, state, and local financing mechanisms and private grants from local and national philanthropies, as well as businesses and anchor institutions.[49] For example, Grand Rapids, MI was able to combine funding from 17 different public and private sources to finance the Michigan Street Corridor Project (see following case study for more details).[50]

While there are many public and private grants that can be utilized to promote healthy communities, often local governments do not have the staff capacity or expertise to leverage these funding sources. If possible, planning departments should explore the possibility of creating a dedicated position for a grant specialist with a public health background to help navigate the web of public and private financing sources. Additionally, fostering strong working relationships with local health departments is another approach to leverage each other's expertise and collaborate on initiatives that promote the shared goal of improving quality of life for the community.

SPECIAL TAX DISTRICTS

Another funding approach implemented in some communities is the creation of special tax districts to finance improvements within a specified boundary that provide public health benefits, including bike and pedestrian infrastructure, streetscaping, street lighting, land banking, and parks and other recreational amenities. There are a variety of value capture revenue tools, including self-taxing districts

[49] Building Healthy Places Network, Making the Case for Linking Community Development and Health, https://www.buildhealthyplaces.org/content/uploads/2015/10/making_the_case_090115.pdf
[50] APA, Healthy Plan Making, https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/research/publichealth/pdf/healthyplanningreport.pdf

and tax increment financing (TIF) to be considered by communities exploring funding strategies besides grants. Self-taxing districts are typically created by property owners in an area and are governed by a non-profit entity. The revenue from the additional tax assessment applied to properties within the district is used to fund improvements within the area. They may be referred to as business improvement districts, community improvement districts, or municipal service districts depending on the state. While the primary aim is often to promote economic vitality, the tax revenue is sometimes used to advance active transportation projects and improve multimodal accessibility, which provide public health benefits.

Common Types of Funding Sources:

- Federal & State Funding
- General Funds
- Transportation Bonds
- Self-Taxing Districts
- Tax Increment Financing
- Local Taxes
- Development Impact Fees
- Private Grants & Donations

TIF is a value capture tool that utilizes future gains in property taxes to fund improvement projects that will help grow the tax base within a designated area. The property tax base at the time the TIF is created is frozen and continues to be distributed to all taxing jurisdictions while the increase in the tax base after the TIF is created is dedicated to being reinvested within the defined area. Eligibility is determined by state statute and typically is limited to areas considered "blighted". TIF is most appropriate for areas where increases in tax revenue would be unlikely without increased public investment. Policy recommendations to ensure funds are directed toward supporting healthier outcomes for the community include:[51]

- Proposing standards that redevelopment plans encourage active transportation, recreational amenities, transit access, and healthy food options;
- Requiring cross-sector participation in the planning process such as practitioners from the health, transportation, and education departments; and
- Mandating measures for housing and job opportunities for those living in the area prior to redevelopment.

CASE STUDY: GRAND RAPIDS, MI FUNDING STRATEGIES

In 2002, the City of Grand Rapids completed its first master plan update in 40 years. The need to repair a lack of community trust was identified as a key priority therefore extensive community outreach was conducted. To follow up the success of the 2002 Master Plan, the Planning Department implemented creative engagement strategies during the following plan update, including a game they developed to identify potential infrastructure projects that volunteers could lead at public workshops as well as gatherings in homes. **When talking about potential interventions, City staff deliberately used the**

[51] Leadership for Healthy Communities, Tax Increment Financing: A Tool for Advancing Healthy Eating and Active Living, https://www.ca-ilg.org/sites/main/files/file-attachments/lhc_policybrief_tif_31.pdf

phrase "quality of life" instead of "public health", as "quality of life" seemed to resonate more with the community.

Community champions were identified to help carry policies forward, including the creation of several organizations: Friends of Grand Rapids Parks, Greater Grand Rapids Bike Coalition, and Grand Rapids Whitewater. As a result of them coming together and helping shape the planning process, these groups had a vested interest in taking ownership of implementing the specific elements of the plan.

As a result of the robust community involvement in the 2002 master plan update, there was a large amount of support from community residents and local foundations going into the 2008 update to build on the success of the previous plan. Several local foundations and the Downtown Development Authority contributed funding for the plan update, including half of the total funding for the process that came from the Frey Foundation. When it became clear that the City would not be able to provide sufficient funding to implement many of the goals identified in the plan update, in part due to the economic recession, ownership over aspects of the plan were given over to the community champions and local organizations that had intimately been involved over the previous decade. The planning process ended up providing a framework for developing and prioritizing funding requests for the private philanthropies and community groups. One of the local charities created a $5 million grant pool with implementation of the plan's priorities as one of three categories eligible for funds. Since the foundations had been involved throughout the planning process, they continued to have a vested interest in seeing the updated plan implemented.

Additional public sector funding sources included brownfield redevelopment tax credits, Community Development Block Grant funds, HUD Sustainable Communities dollars, state grants, Michigan Department of Natural Resources trust fund dollars, neighborhood special assessments. The City took the successful approach of asking multiple sources for smaller amounts. For example, 17 different funding sources were used to fund the $1 million Michigan Street Corridor Plan. The City also provides $5,000 towards the creation of small area plans created by neighborhood organizations. The organizations must raise any additional funds, and the plans' goals are required to be in accordance with the City's comprehensive plan. To measure progress made towards the plan's benchmarks, an annual report card was developed.[52]

[52] APA, Healthy Plan Making, https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/research/publichealth/pdf/healthyplanningreport.pdf

Case Study Key Takeaways:

- Next steps should be iterative and shaped by community input to foster continued support over multiple planning cycles.
- Meaningful engagement of the community helped foster a vested interest in helping implement the plan, both through financial and in-kind contributions, which became crucial when the City could not afford to implement many of the plan's proposed projects.
- The entire planning process influences the likelihood of implementation success.
- Creatively leveraging a mix of smaller amounts from multiple public and private funding sources can fill the gap of one large funding source.

CASE STUDY: ATLANTA REGIONAL COMMISSION LIVABLE COMMUNITIES INITIATIVE

In response to air pollution levels regularly surpassing legal limits established in the Clean Air Act during the 1990s and the warning by federal agencies that the MPO's Transportation Improvement Program and long-range transportation plan may be rejected, the Atlanta Regional Commission (ARC) launched the Livable Communities Initiative (LCI) in 1999. To counteract the historic emphasis on roadway expansion projects, the aim of LCI was to incentivize development and transportation projects that improve air quality, reduce auto-dependency, and reduce vehicle miles traveled, all of which support better outcomes for public health. Flexibility in the federal grant programs allowed ARC to design a funding source to meet the local needs.

LCI provides funding to local governments, nonprofits, and community improvements districts (CIDs) to undertake planning processes and implement the projects and policy changes recommended by the resulting plans.[53] The grants cover 80% of the cost and the recipient must provide matching funds for the remaining 20%. Once a community conducts an initial LCI study, it becomes eligible for additional funding from LCI for implementation of the projects and policy changes recommended in the plan. To help raise the matching funds required for LCI grants and for implementation of projects, programs, and planning initiatives, some local jurisdictions have created CIDs. The recipients of LCI funding are allowed flexibility in customizing their study to advance local objectives and may focus on a range of concerns, such as quality of life, multimodal transportation, or economic development. Prior to LCI, ARC did not have any designated funding for local planning initiatives or active transportation projects.

LCI funding has supported initiatives in a variety of communities, from small towns to the region's most urbanized areas. Communities are selected based on a variety of factors, including alignment with LCI goals relating to air quality, transit connectivity, and equity, as well as the proposed project's regional significance and the community's demonstrated commitment to implementation. ARC uses an index

[53] Atlanta Regional Commission, Livable Centers Initiative, https://atlantaregional.org/community-development/livable-centers-initiative

created by the MPO called Equitable Target Area, which is based on characteristics such as the area's level of poverty and racial diversity.

ARC has aligned LCI with other policies and programs under the MPO. LCI funding is sometimes utilized to implement recommendations generated through other MPO programs, such as the Lifelong Communities/Live Beyond Expectations program, which aims to support people of all ages and abilities to remain in their homes and communities. Local jurisdictions also take advantage of the technical assistance offered by the MPO through their Community Choices Implementation Assistance Program on how to implement recommendations from the LCI plans. An additional benefit of LCI is the increased engagement between ARC and the smaller member jurisdictions as the MPO remains closely involved throughout the design and implementation phases of LCI projects.

Funding for active transportation in the member jurisdictions has increased substantially because of the program. ARC spent $3 million on seven bike and/or pedestrian projects per year on average before implementing LCI. Between the program launching in 1999 and 2018, LCI provided an average of $12 million per year on 19 projects and studies.[54]

Case Study Key Takeaways:

- Providing a dedicated funding source at the regional level resulted in a dramatic increase in the number of active transportation planning processes and projects.
- The flexibility of LCI funding fosters ownership and enthusiasm among local jurisdictions for regional programs.
- Long-lasting partnerships between the MPO and its member jurisdictions are formed over the LCI planning and implementation phases.
- Member jurisdictions were incentivized to develop strategies for raising matching funds, including the creation of self-taxing districts.

A COLLABORATIVE APPROACH

PLANNING STAFF

While many planning organizations and transportation agencies recognize the potential benefit of including public health professionals on planning department staff, our research has not identified any jurisdictions implementing this staffing model in the United States. While the US DOT supports this strategy in their summary of literature and review on integrating health and transportation in planning,[55] all examples of transportation and public health partnerships identified focus on

[54] American Public Health Association and Transportation for America, Measuring What We Value: How Regional Transportation Planning Agencies Are Promoting Physical Activity, https://t4america.org/wp-content/uploads/2017/02/Healthy-MPOs-Policy-Paper-web.pdf

[55] US DOT, Integrate Health and Transportation Planning, https://www.transportation.gov/mission/health/Integrate-Health-and-Transportation-Planning

interdepartmental collaboration rather than the creation of a staff position within a planning department dedicated to public health.

Internationally, the city of Bristol in the United Kingdom has integrated public health experts into key staffing positions across various departments in their local government to help with health-related project implementation.[56] One specialist was placed on staff in the transportation department to embed a health-perspective into its organizational structure and policy development. Areas where this staffing position has made an impact include:

- Lowering speed limits across the city and increasing road safety
- Providing literature and information linking transportation and health
- Utilizing available health impact tools and metrics as part of transportation projects
- Advocacy for transportation efforts (bicycling and walking programming) to other agencies
- Creating a cross-sector collaboration sub-group under the Supporting Healthy Inclusive Neighbourhood Environments Team called the Health Integration Team (SHINE HIT)

This approach has helped with an apparent increase in multimodal travel between 2001 and 2011. Bicycle commuting increased in the city by 94% and walking to work increased by 40%. Following one of the transportation programs led by the public health specialist in 2013, a survey reported that 26% of respondents had altered their travel habits because of the study.

If obtaining funding for a long-term public health staff position within a planning department is unrealistic, another way to integrate health principles into transportation is through scoping a public health consultant for specific projects. London's transportation agency, Transport for London (TfL), hired a public health consultant for their Transport Action Plan in 2014. The consultant was responsible for outlining transportation-related measure for improving health for London residents. Specific goals included:

- Supporting TfL in implementing health into its decision-making processes
- Producing a Healthy Street Survey to engage the public in making changes to their streets
- Creating a Healthy Streets Check to ensure planners and engineers incorporate health-related best practices into street design
- Writing a local manual for implementing the World Health Organization's Health Economic Assessment Tool, which monetizes health impacts in business cases for projects and policies.[57]

INTERDEPARTMENTAL COLLABORATION

There are many barriers to interdepartmental collaboration, including a lack of resources, shared vision, skilled leadership, mutual understanding, and trust. Additionally, differences in strategies, approaches to assessment of needs, and measures of outcomes can also present challenges for effective cross-sector collaboration. Creating a venue for staff from different departments to interact regularly is a common

[56] Eltis, How Public Health Specialists can Change Transport Planning, https://www.eltis.org/discover/case-studies/bristol-uk-how-public-health-specialists-can-change-transport-planning
[57] Eltis, How Transport Plan London is Tackling Public Health Issues, https://www.eltis.org/discover/case-studies/how-transport-plan-london-tackling-public-health-issues-uk

approach for fostering interdepartmental relationships. Framing conversations around the common goal of quality of life is a useful starting point for dialogue to bridge the gap between sectors that have different functions, aims, and vocabulary.

The sharing of data is another fruitful activity for interdepartmental collaboration, whether it be part of the comprehensive planning process or for other activities such as impact and needs assessments. As mentioned, proxy metrics are often utilized in transportation planning to measure the effects of improvements to the built environment on quality of life rather than explicit metrics of public health, such as rates of disease or mortality. Interventions such as the expansion of the sidewalk network, new bike infrastructure, and improvements to air quality by reduced vehicle miles traveled are assumed to translate to healthier outcomes for the community.

Through partnership with public health departments, planners can leverage the expertise and data methods of local health professionals to evaluate changes more directly to health outcomes over time. As already discussed, the engagement of public health professionals early and throughout the planning process is key to incorporate their expertise. Coordination may include regular workshops to discuss health-specific metrics and data sources and findings from the CHNA, as well as the sharing of draft planning documents for review. In Dubuque, Iowa, where the CHNA and Health Impact Plan are updated on the same five-year cycle, the working relationships between public health and planning staff have deepened over the many iterations of the planning processes. The retainment of staff over many years has also helped provide a strong foundation for partnering.[58]

For all departments to be motivated to partner together, it is important to avoid the "wrong pocket problem" where using the resources from one department reduces costs for a separate department. Ensuring shared financial incentives is key for cross-sector collaboration and sharing of resources.[59]

INTERGOVERNMENTAL COLLABORATION

Funding is the primary vehicle for intergovernmental collaboration, often through the various grant programs that relate to the promotion of healthy communities such as those mentioned in the section on funding sources. State departments and regional planning organizations typically offer guidance to local jurisdictions on funding opportunities available. As highlighted in the section on data and metrics, there has also been ample collaboration between federal agencies, regional planning organizations, and local jurisdictions on the creation and utilization of assessment and planning toolkits.

The project scoping process presents another opportunity for intergovernmental collaboration. In Florida, the Broward MPO helps create a smoother process for project planning and implementation by convening the state DOT engineering staff, local municipal staff, and roadway owner to evaluate the feasibility of a project once it has been identified. As demonstrated in the case study on the Atlanta Regional Council's LCI initiative, the MPO can also play a crucial role in supporting the efforts of member jurisdictions to promote healthier outcomes for their communities. Avenues for support include flexible

[58] APA, Healthy Plan Making, https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/research/publichealth/pdf/healthyplanningreport.pdf
[59] Building Healthy Places Network, Making the Case for Linking Community Development and Health, https://www.buildhealthyplaces.org/content/uploads/2015/10/making_the_case_090115.pdf

funding, technical assistance and training, and arranging opportunities for the jurisdictions to engage with each other and foster relationships.

CASE STUDY: RALEIGH, NORTH CAROLINA COMPREHENSIVE PLAN IMPLEMENTATION

In Raleigh, NC, all city departments are required to help carry out the city's comprehensive plan. Back in 2007, the city planning director realized that the city's charter stated that the comprehensive plan was meant to be a guide for the entire city, not just the planning department. **To institutionalize the mandate that all city departments help realize the goals of the comprehensive plan, the city manager called for implementation of the plan to be added to the performance evaluations of all department heads. This new expectation resulted in a shift towards more meaningful collaboration now that there was more concrete motivation.**

An interdepartmental working group was created to help address the history of poor communication between the departments. An obvious area for improvement was discovered due to different population forecasts by various departments, resulting in a discrepancy between expectations and assessment of needs for the future of the community. To further streamline coordination, seven city departments focused on aspects of the development process, including planning, were consolidated and the planning director was put in charge.

The interdepartmental working group included senior staff from all departments involved in urban development:

- Community Development
- Community Services
- Parks & Recreation
- Public Works
- Solid Waste Services

As an additional measure for ensuring implementation of proposed projects recommended in the comprehensive plan, adherence to the plan's goals was incorporated into the city's development project approval process. This strategy has helped align capital funding with the comprehensive plan. Each year the planning department assesses progress made towards realizing the plans goals and can supplement with additional goals or objectives as needed. The combination of policy changes, department

Case Study Key Takeaways:

- Institutionalizing the mandate that all departments were evaluated on addressing the comp plan successfully incentivized interdepartmental collaboration.
- The creation of an interdepartmental working group consisting of senior staff fostered the identification of strategies for better coordination and alignment of goals.
- The planning department is well positioned to highlight interconnectedness of departmental goals and ensure departments use the same baseline data for projections.
- Reorganization of city departments helped break down silos and create closer connections between those working on similar functions.

consolidation, structured collaboration, and annual progress evaluation has resulted in a more effective and coordinated comprehensive planning process.[60]

CASE STUDY: EAST CENTRAL REGION OF WISCONSIN INTERGOVERNMENTAL COLLABORATION

The East Central Regional Planning Commission includes eight counties, which contain a mix of urban, suburban, and rural communities. The three urbanized areas within the region each have their own MPO. The Regional Planning Commission began coordinating cross-sector collaboration on the intersection of public health and transportation in the mid-2000s after the passage of the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, which included funding for Safe Routes to Schools. The Wisconsin DOT encouraged organizations to build broad-based coalitions to implement the program locally. In the East Central region, the Commission convened representatives from municipal departments, public health, law enforcement, education, and advocacy organizations. The principal transportation planner for the Commission noted that this collaborative approach was a learning experience for planning organization as the participants recognized their shared vision of safer environments for students and by bringing their unique perspectives the work they accomplished was strengthened. The experience influenced the Commission's approach to its programming going forward.

Identifying shared goals and making the connection between health concerns and transportation infrastructure, such as obesity/inactivity and supporting children walking and biking to school, was key for different departments and sectors to work together successfully. After establishing the region's Safe Routes to School program in 2009, the Commission helped encourage the development of several bike and pedestrian plans to continue working towards the encouragement of multimodal transportation options and increased safety. In 2012, the Commission and the intergovernmental coalition began developing a regional bicycle and pedestrian plan with the ambitious goal of connecting 30 communities in a tri-county area. The resulting plan provided a model for other communities on integrating health in planning.

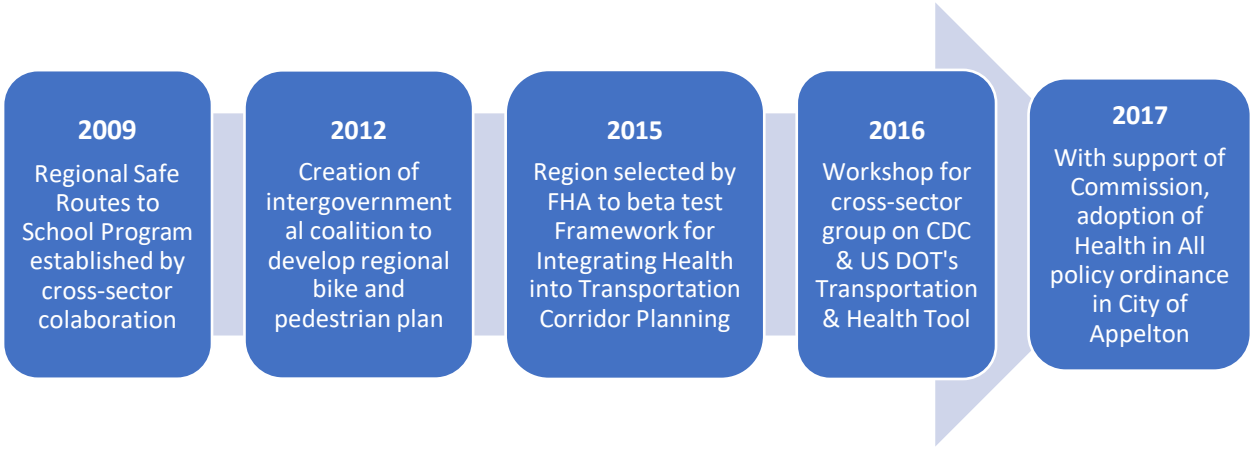
The regional bike and pedestrian plan also demonstrated the area's commitment to supporting healthier outcomes for their community. As a result of the focus on health, the Federal Highway Administration (FHA) selected the region as one of five communities to beta test the department's Framework for Integrating Health into Transportation Corridor Planning in 2015. The corridor study focused on the connection between the City of Appleton's downtown and its airport, and it was the first time the Commission had introduced public health professionals into a corridor planning process. The Commission convened local stakeholders from different sectors to consider how transportation options affect the health and safety of all roadway users. This effort continued to build on the region's practice of integrating different perspectives and helping strengthen relationships between practitioners from a variety of sectors.

In 2016, the Commission worked with staff from the CDC and US DOT on organizing a workshop to train local staff and officials on a new online data platform called the Transportation and Health Tool (THT), which provides health indicator data at the state and MSA levels, strategies to address health concerns,

[60] APA, Healthy Plan Making, https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/research/publichealth/pdf/healthyplanningreport.pdf

and additional resources. Funded in part by the APHA, THT was launched by the CDC and US DOT to encourage collaboration and assist practitioners in promoting healthier communities. The goal of the workshop was to bring together a cross-sector group, including local planners, public works professionals, public health practitioners, and elected officials, to train them on how to work together for mutual benefit and how to use the tool for greater impact. Throughout the workshop, the linkages between active transportation, land use, parks and public spaces, and access were explored and emphasized, which allowed the participants to reinforce their understanding of the interconnections between their work. **A key takeaway from the gathering was how all were working towards improving quality of life but coming at it from different perspectives.**

After the workshop, collaboration between the participants continued on a variety of initiatives, including leveraging funding and jointly applying for grants, collaborating on comprehensive plans, and sharing data and other resources. Immediate next steps included the adoption of a regional Complete Streets policy and creation of a framework for adoption of policies by local jurisdictions, with technical assistance from Smart Growth America. Additionally, a wayfinding signage program was created to encourage active transportation and recreation in the region. In 2017, the Commission supported the adoption of a "Health in All" policy ordinance, which requires city staff and departments to measure the impact of their work on community health. The ordinance also requires city staff to publish a report every three years on the status of health and health equity in the city and the progress of incorporating health in all policies.[61]



[61] American Public Health Association, Planning with a Public Health Focus: Connecting the Dots in the East Central Region of Wisconsin, https://www.apha.org/-/media/Files/PDF/topics/transport/wisconsin_story.ashx

Case Study Key Takeaways:

- Identifying shared goals and the intersections between public health concerns and transportation solutions created a strong foundation for interdepartmental collaboration.
- Having repeated opportunities to work together over time fosters a better understanding of the language and processes used by the different sectors, creating more effective collaboration.
- Demonstrating a commitment to incorporating health in planning made the region a desirable candidate for the federal government to partner with on new health initiatives, resulting in more support and opportunities to improve community health outcomes.

CONCLUSION

INCORPORATING PUBLIC HEALTH INTO PLANNING AND PROJECT IMPLEMENTATION

Communities across the country are increasingly incorporating public health into planning and project implementation. Although access to data is a common challenge, there is a wide range of tools and data sources available to assist with assessing community health outcomes, prioritizing projects and programs, and designing a built environment that enhances quality of life.

- HIAs are a popular method for measuring the impacts of transportation projects on quality of life and can be utilized to guide decisions on choosing planning interventions.
- Data collection methods include utilizing online platforms developed by federal and state agencies, advocacy organizations, and academic institutions. These public resources provide a cost-effective method for obtaining data. However, a limitation is that many focus only on the largest cities or metropolitan areas and are not applicable to small and mid-size communities.
- Some places have invested in more robust strategies to obtain data, including participatory approaches such as smartphone apps for the public to log bike and pedestrian trips and detailed household travel surveys. While these methods provide insights that may not otherwise be available and encourage public engagement, they are often too costly for many to implement or update on a frequent basis.
- Project prioritization processes are increasingly being redesigned to assign priority to projects addressing discrepancies in health outcomes, such as those mentioned in the case studies on Fort Worth, TX; the Nashville MPO; and Washington, DC DOT.
- Smart Growth America, the Robert Johnson Wood Foundation, New York City DOT, and Vermont DOT are examples of organizations and agencies that offer design guidelines that help improve a community's quality of life and are tailored to rural or urban settings.

ENCOURAGING EQUITABLE HEALTHY COMMUNITIES

Historic approaches to planning and community engagement have often harmed communities of racial and ethnic minorities through the unfair burden of environmental hazards and lack of meaningful engagement, which has led to discrepancies in health outcomes.

- Inclusionary planning requires practitioners to ensure there is adequate access to the planning process and the people the project is aiming to serve can meaningfully engage. Instituting a social justice framework, as well as anti-bias training, are effective methods for questioning the status quo and help ensure that those who have historically been left out of the planning process are given special consideration.
- Incorporating considerations related to the equitable distribution of projects into the prioritization process can help avoid falling into the trap of the "squeaky wheel getting the grease" since there is a documented, data-driven process for project selection.
- Adopting an anti-displacement strategy is a relatively new approach to help address concerns regarding gentrification caused by investment in enhanced infrastructure. Policies and programs typically relate to protection of existing residents, preservation of existing affordable units, and production of new affordable units. Austin, TX, Providence, RI, San Jose, CA, and Vancouver, WA have all adopted anti-displacement strategies in the last couple of years.
- The built environment's role in promoting healthy communities in rural settings is most related to equitable access to essential services and recreational opportunities that support physical activity, especially for those without a vehicle. A "Bike-Library" is a free-to-the-user bikeshare system that rural communities have successfully implemented, and Rails to Trails and Safe Routes to School are two national programs that have also had success in promoting healthier lifestyles in rural communities.

FUNDING PROJECTS TO SUPPORT HEALTHY COMMUNITIES

One of the most cited challenges for improving community health outcomes is securing adequate funding to undertake robust planning efforts and implement recommended projects and programs. Unfortunately, there is no silver bullet solution to the funding gap.

- A key takeaway from the literature review was how dependent many initiatives are on a diversity of sources. The most successful communities are able to creatively leverage a mix of local, state, and federal funding, as well as in-kind and financial contributions from the private sector, including non-profit organizations, charities, businesses, anchor institutions, and community members. This requires expertise in navigating the universe of public and private grants and strong relationships with community champions to help buoy ongoing support.
- By demonstrating a commitment to improving an area's quality of life through integrating a public health lens in planning efforts, the community becomes a more attractive candidate for awarding funding to support healthy communities.
- In addition to obtaining funding from agencies such as the CDC and US DOT, local governments have relied on bonds, impact fees, special taxing districts, and tax increment financing to raise funds to support transportation planning efforts and infrastructure projects.

A COLLABORATIVE APPROACH

To successfully integrate a public health lens in planning and implementation efforts and improve quality of life, collaboration between governmental departments and different sectors is essential.

- No instances of staff positions focused entirely on public health were identified within a planning department in the United States, although there were multiple references to that being an ideal scenario. Instead, partnerships with public health departments are typically

leveraged. In the United Kingdom, there has been success with integrating public health specialists in multiple departments within a local government, as well as contracting with a public health consultant to lead a local planning initiative.

- Engaging public health officials early in the planning process increases the likelihood of effectively incorporating public health goals and metrics throughout planning processes and the evaluation of interventions.
- Facilitating repeated opportunities for interdepartmental and cross-sector engagement, such as the comprehensive and other planning processes, as well as short-term efforts requiring collaboration, like disaster or emergency responses, helps foster longer-term relationships. During these activities when practitioners from different disciplines come together, it is important to instill the understanding that all are working towards a common goal of improving quality of life but coming at it from different angles.
- Through repeated and frequent interaction, practitioners will better learn each other's languages, processes, and guiding principles.
- At the local level, it often requires a strong champion to coordinate interdepartmental collaboration. The planning department is well-positioned for facilitating this collaboration, especially through the comprehensive planning process and regular plan updates.
- The MPO can play a pivotal role as a convener of representatives from different jurisdictions and levels of government, through educational workshops and regional planning initiatives.
- Strong relationships can lay the foundation for identifying shared financial incentives, partnering on pursuing funding, and the sharing of resources. Building these relationships are crucial for supporting healthier outcomes as no department or jurisdiction can achieve it on their own.

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