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City of Oakland Department of Transportation Best Practices Report

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# City of Oakland
# Department of Transportation
# Best Practices Report

Presented to the City of Oakland in December 2015 by

218 Consultants
University of California, Berkeley
Department of City and Regional Planning
Transportation Planning Studio, Fall 2015

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For details on the overall project, additional materials including interactive maps, and the team's contact information, please see www.218consultants.com.

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# Executive Summary

## Introduction

Guided by themes of equity and resiliency, 218 Consultants conducted research on best practices for building an innovative Department of Transportation (DOT) in Oakland, CA. Recommendations for implementing best practices lie within five sub-topic areas: internal and external coordination, funding, public engagement, project prioritization, and performance management. 218 Consultants recognizes that these are not the only topics relevant to the success of an innovative DOT; nonetheless, each is individually important and an opportunity for innovation, and their collective impact will help the DOT develop effective, proactive transportation solutions.

## Methodology

218 Consultants, a team of transportation planners and engineers working in the Transportation Planning Studio at the University of California, Berkeley, conducted comprehensive research within the five sub-topic areas via critical review of literature and policy documents, as well as fifteen interviews with public agency staff and academic researchers. The resulting recommendations are presented in this report for consideration by officials at the City of Oakland.

## Findings

### Internal and External Coordination

218 Consultants recommends improvements to internal and external coordination processes to ensure that Oakland's new DOT is efficient and effective. The team provides the following recommendations:

1.  Establish a formalized mentoring program between senior management and staff.
2.  Empower HR personnel to introduce their insights into succession and workforce planning to the new DOT. In turn, this will improve interdepartmental coordination and support.
3.  Amend current hiring practices to allow for the most qualified candidates to apply and be hired.
4.  Encourage structured training and development programs, hosted by department employees, to facilitate knowledge transfer.
5.  Seek out non-traditional partnerships in the aim of improving regional coordination. This includes partnering with private organizations and neighboring cities.

### Funding

Oakland has a diverse set of transportation funding sources, major unmet funding needs, and a sizeable role in regional economic growth. With this in mind, 218 Consultants examined funding at the regional level, specifically the One Bay Area Grant (OBAG) program and its funding formula, in order to develop a proposed strategy for consideration that would redistribute funds to cities which accommodate a high concentration of uses and throughput of regional travel. The team recommends:

1.  Modification of OBAG funding formulas to incorporate employment and traffic throughput.
2.  Enhancements to Oakland's staffing capacity to better leverage funding opportunities.

*Public Interface*
A coordinated, consistent, and open public interface will be an essential tool for branding the DOT, disseminating information about future projects, and gathering public input during planning and implementation. A digital presence is increasingly important, but in the past has received mixed attention in Oakland. 218 Consultants has investigated the City's current state of online engagement related to transportation issues by analyzing social media posts. Near term recommendations include:

1. Study current public discussion regarding transportation topics via social media data analysis.
2. Develop a public engagement plan that incorporates digital approaches while addressing the implications for populations with low access to or knowledge of digital platforms.
3. Establish a unified City presence on social media, and develop a social media policy.
4. Create a work plan for developing web-based tools for directed public feedback.

*Project Prioritization*
Oakland's DOT should adopt a new project prioritization process to enhance transparency and accountability. This process should favor projects that meet City goals while providing the greatest benefits for the community. The City should consider both short- and long-term impacts of the prioritization process, along with input from stakeholders and the general public. Ultimately, the process will improve DOT bond issuing conditions and access to global climate funds. The team's recommendations include:

1. Use the World Bank Climate-Smart Capital Investment Planning tool.
2. Use a two-step project assessment to screen project alternatives and then rank all projects.
3. Encourage internal city stakeholder participation in criteria weighting and project scoring.

*Performance Management*
Performance management, the process of collecting and analyzing data to inform decision making, is being widely adopted by municipalities across the country. It is an essential tool that can help the new DOT spend resources effectively and expand infrastructure efficiently and equitably. The project team proposes the following recommendations for Oakland as the city organizes its new DOT:

1. Create an Oakland Office of Performance Management, with the DOT as a pilot case for city-wide metric development. This can build off of existing Department of Public Works efforts.
2. Conduct regular performance data reviews, and include supporting departments such as Human Resources in these meetings to develop solutions for ongoing challenges.
3. Establish new transportation performance metrics based on department-identified goals. For example, one potential new safety metric is traffic fatalities for all road users.

## Conclusion

218 Consultants has presented best practice recommendations for an innovative, integrated DOT. Through thoughtful action on these five subtopics, the City of Oakland can serve as a leader in providing resilient and equitable transportation services. Furthermore, the best practices and findings presented here may inform cities in similar circumstances looking to improve DOT operations.

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## iii   Project and Team Description

218 Consultants is a team of transportation planning and engineering graduate students at the University of California, Berkeley, who seek to promote equitable and resilient transportation systems in the San Francisco Bay Area. The team recently proposed an implementation strategy for the City of Oakland's new Department of Transportation (DOT). This strategy provides a framework to implement mobility hubs across the City of Oakland that integrates emerging modes of bike share, car share, and rideshare services with transit services to improve first and last mile access. Two sub-teams worked closely to develop this strategy, one focusing on best practices from municipal DOTs across the country in such aspects as financing and funding, internal and external coordination, and public interface; and another working to identify the optimal locations for mobility hubs within Oakland and the corresponding modes that each hub could offer. This report and associated content for this project, including an interactive webmap, can be found on the project website: http://www.218consultants.com/.

## iv   Acknowledgments

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# 1   Internal and External Coordination

"…If knowledge is the primary economic enabler, workforce skills are the real capital…"
    – J. Pynes, Public Administration Researcher, 2004

## 1.1   Problem Statement

The greatest challenge to implementing transportation investments is the ability to effectively harness city staff and external stakeholders. For a capital project to go from the drawing board to the pavement, numerous DOT employees must be included in planning, construction, and maintenance. This includes, but is certainly not limited to, transportation engineers, planners, project managers, and executives overseeing local government compliance. Outside of the DOT, collaboration exists between transit agencies, neighboring cities, and advocacy groups to ensure a project is publicly approved.

Oakland's new DOT has an opportunity to incorporate fresh internal and external communication and coordination techniques to improve the department's effectiveness. Based on an extensive literature review and fifteen in-depth interviews, this portion of the 218 Consultants report, identifies challenges and best practices, in an effort to establish a more innovative and transparent department of transportation.

This chapter addresses the following topics pertaining to internal and external coordination:

- **Literature Review:** to extract the best internal and external coordination practices occurring across the US, a detailed review of the academic literature was conducted. Case study examples are highlighted throughout the literature review and are further displayed as vignettes throughout the full document.
- **Methodology and Research Design:** this section details the process for which in-depth interviews were conducted. The interviews comprised of current city employees, as well as local and regional stakeholders from funding and transit agencies. Interviews with public administration and city planning scholars were conducted to gain perspective on the current research emerging in academia.
- **Results and Findings:** this section details the process for which interviews were assessed. An iterative coding process was performed to identify commonly discussed themes across the interviews. Interviews were read through for an overall assessment, and then re-read to expose over-arching themes and persuasive arguments. As detailed below, the final results and findings were aggregated into five sub-topics: management, staffing constraints and needs, workforce, training, and external coordination.
- **Recommendations:** to conclude the chapter, detailed recommendations are provided. Inspired from the literature and the in-depth interviews, these recommendations can be phased in strategically to safeguard a more effective and efficient department of transportation.

## 1.2   Literature Review

Local government has arrived at a critical time; referred to as a "perfect storm" by entrepreneurial scholar, Bethany Rubin Henderson, a convergence of government downsizing during the 1980s and early 1990s, a heightened "brain drain" effect attributed to baby boomer retirements, and the competitive advantage that

the private and nonprofit sectors have had on worker retention, have all disrupted internal workforce development. As shared by Goodman et al., these three trends, along with a lack of internal training and knowledge building, have left many local municipalities at a disadvantage.[1]

To curb this "perfect storm" effect, there are a number of internal and external coordination reforms that the city of Oakland can apply to curtail this current path. Knowing that local agencies are not alone, this literature review details best practices occurring across the United States. This report begins by discussing the need to improve accountability at the managerial level, to improving employee engagement, to elevating human resources, to encouraging internal knowledge building, and the benefits to preparing workforce and succession plans.

### 1.2.1   Accountability and Managerial Trust

One of government's greatest tasks is being accountable to its constituents. And, if accountability is deemed the ultimate public service, to be transparent to the citizens, it seems fair that the same level of accountability be justified within the walls of an innovative transportation department. Professional accountability between managers and staff is fundamental for high-level internal coordination. However, Romzek & Dubnick (1987) share that accountability is an underdeveloped concept in American public agencies.[2]

Professional accountability, as defined by Romzek and Dubnick, occurs when public employees are able to lean on their managers for guidance and trust. Author David Carnevale (1995) argues that trust is the hidden ingredient for a high performing agency. Yet, in the last several decades, research has suggested that employees have become less trusting of their managers. Numerous authors including Zeffane (1994) and Kosgaard et al. (1995) suggest that the lack of trust can be attributed to poor management techniques and the absence of leadership support.[3]

Leadership mismatch, a widely applied concept constructed by Fred Fiedler, a leading researcher of organizational psychology, deems that a leader is a particular person, one who can maintain situational control; one who can lead a group and delegate tasks. Fiedler offers three necessary factors for a successful leadership cohort. If Fiedler's factors are unmet, an agency is less effective at accomplishing their goals.[4]

- **Leader-Member Relationship:** the ability to form a mutual trust relationship with staff members.

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[1] Bethany Rubin Henderson, "Don't Shut the Door on Your Way out: Stopping the Threat to City Operations Posed by the Aging Municipal Workforce," *National Civic Review* 97, no. 3 (September 1, 2008): 3–10, doi:10.1002/ncr.218.

[2] Barbara S. Romzek and Melvin J. Dubnick, "Accountability in the Public Sector: Lessons from the Challenger Tragedy," *Public Administration Review* 47, no. 3 (1987): 227–38, doi:10.2307/975901.

[3] David G. Carnevale, *Trustworthy Government: Leadership and Management Strategies for Building Trust and High Performance* (San Francisco: Jossey-Bass Publishers, 1995); Rachid Zeffane, "Patterns of Organizational Commitment and Perceived Management Style: A Comparison of Public and Private Sector Employees," *Human Relations* 47, no. 8 (August 1, 1994): 977–1010, doi:10.1177/001872679404700806; M. Audrey Korsgaard, David M. Schweiger, and Harry J. Sapienza, "Building Commitment, Attachment, and Trust in Strategic Decision-Making Teams: The Role of Procedural Justice," *Academy of Management Journal* 38, no. 1 (February 1, 1995): 60–84, doi:10.2307/256728.

[4] Fred Fiedler and Martin Chemers, *A Theory of Leadership Effectiveness.* (New York: McGraw-Hill, 1967).

- ▪ **Task Structure:** the ability to group tasks and offer clear group goals
- ▪ **Leader Position Power:** the ability to be in a position of power.[5]

*How is this achieved?*

To evolve more trusting relationships within a department of transportation, organizational behaviorist, Alan Saks, suggests applying techniques developed from Social Exchange Theory (SET). SET, as defined by Blau (1964) and other classical exchange theorists, offers that social exchange relationships occur when managers take care of their employees by promoting one-on-one relationships, providing help and advice without any request of reciprocation.[6]

However, contemporary authors do note that within a public agency, rules of reciprocity are often recommended to improve the exchange of tacit knowledge between managers and staff employees. As detailed by Mold et al., (2009) a reciprocal exchange is when actors, in this case, a DOT employee and his/her manager, perform beneficial acts for one another. (For example, completing and/or reviewing a project before deadline.) Beneficial acts prompt shared benefits, and although these acts may take time to develop, they will gradually produce stronger working relationships.[7]

## 1.2.2  Employee Engagement

Engaged managerial staff leads us into discussions of employee engagement, a crucial component of effective internal coordination. Kahn (1990) defines employee engagement as an organization's ability to "harness" its employees and is a gauge for an employee's personal investment in the agency. As defined by social psychologist, Dr. Richard Wellins, employee engagement is "the extent to which people enjoy and believe in what they do and feel valued for doing it." Wellins shares that 40-70% of employees are agnostic about their work, and 10-20% of all employees are *actively,* "disengaged."[8]

Saks (2006) provides one of the first empirical tests of antecedents and consequences of employee engagement. His contribution suggests that there is a divide between job and organizational engagement. According to Saks's study, employees tend to be more engaged in their jobs rather than their agency. This can be attributed to a variety of factors, such as; employees are more focused on their own successes and care more for the unique characteristics of their specific position. Saks found that those more invested in the larger agency, identified a strong support system from managers and executives, feeling free to take risks without repercussions.[9]

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[5] Ibid.

[6] Peter Michael Blau, *Exchange and Power in Social Life* (Transaction Publishers, 1964).

[7] Linda D. Molm, Nobuyuki Takahashi, and Gretchen Peterson, "Risk and Trust in Social Exchange: An Experimental Test of a Classical Proposition," *American Journal of Sociology* 105, no. 5 (2000): 1396–1427.

[8] Richard S. Wellins and Paul Bernthal, "Employee Engagement: The Key to Realizing Competitive Advantage," n.d.

[9] Alan M. Saks, "Antecedents and Consequences of Employee Engagement," *Journal of Managerial Psychology* 21, no. 7 (October 1, 2006): 600–619, doi:10.1108/02683940610690169.

| Antecedents | Employee Engagement | Consequences |
|---|---|---|
| Job characteristics<br><br>Perceived organizational support<br><br>perceived supervisor support<br><br>rewards and recognition<br><br>procedural justice<br><br>distributive justice | Job Engagement<br><br>Organizational Engagement | Job Satisfaction<br><br>Organizational commitment<br><br>Intention to quit<br><br>Organizational citizenship behavior |
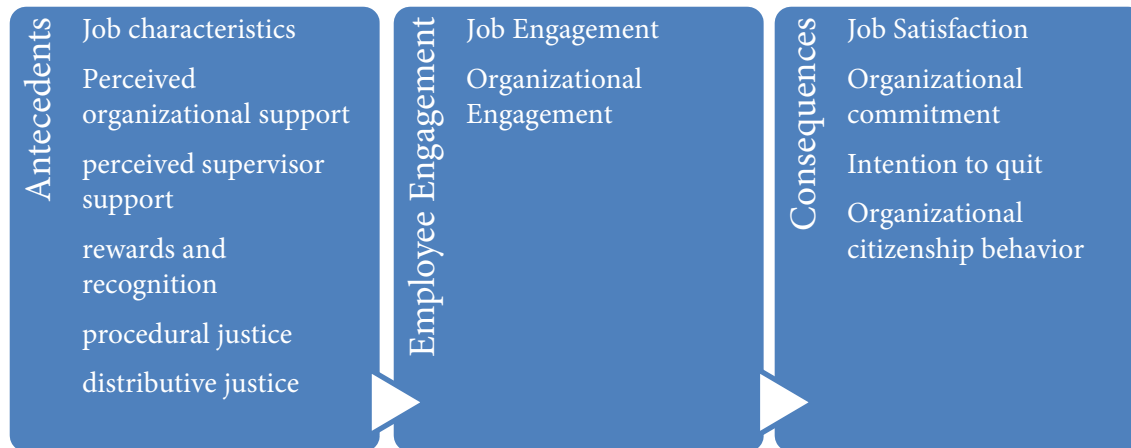
*Figure 1: Model of the antecedents and consequences of employee engagement by Saks (2006)*

### How is this achieved?

In today's work environment, few employees are able to do their work without input from colleagues. And, as shared by journalist Amy Joyce, there is nothing worse than working with someone who is unproductive and uninspired. In turn, this causes a ripple effect; trust in leadership diminishes and communal drive dwindles. Improved engagement can be achieved through a variety of techniques. Dr. Richard Wellins suggests measuring engagement through employee questionnaires, for "…the ultimate owner of engagement rests within the individual employee, [tapping] into employees' passions, commitment, and identification with the organization."[10] Robinson (2004) suggests long-term knowledge training and improved staffing protocols by elevating the city's human resources department.[11]

## 1.2.3 Human Resources

> "HRM professionals need to move beyond their administrative roles of providing clerical and administrative support…to address how quickly an organization can adapt to change."
> – J. Pynes, 2004

Battaglio and Condrey (2006) detail alternative human resource protocols by detailing four states which have restructured their personnel departments.

- In 1996, **Georgia** chose to remove their civil service hiring process. Managers are now able to fill vacant positions without having to confer with the central human resources department. However, Georgia's amendment has led to accountability concerns. Professor of Public Affairs, Paul Battaglio, notes that the lack of uniformity has exacerbated personnel problems. Arguably,

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[10] Wellins and Bernthal, "Employee Engagement."

[11] Dilys Robinson, Sarah Perryman, and Sue Hayday, "The Drivers of Employee Engagement," *Institute for Employment Studies*, 2004.

Battaglio offers, "without a strong central human resources department, it is difficult to achieve fairness across departments."[12]

- In 1995, **New York** Governor George Pataki requested Civil Service Commissioner, George Sinnott, to organize stakeholders (Director of State Operations, the Governor's Office of Employee Relations, the Governor's Office of the Budget, and unionized public employees) to participate in a civil service task force. The task was to implement a program to incrementally change administrative reforms through a collaborative approach. The results of the program resulted in a joint legislative committee, an enhanced applicant-hiring list, and improved recruitment processes. Unionized workers played a significant role in the development of *New Civil Service,* supporting new state-wide policies that modified procedures for hiring, managing salaries, and dismissing employees.[13]

- **Chapel Hill, North Carolina** established *a human resource management relations committee* to encourage dialogue between city departments. The group continues to consider current policies and practices with the aim of creating an open dialogue for change and improvement. Chapel Hill's human resource director and the city's department managers deliberate on decisions together. This technique promotes multidirectional communication patterns and promotes citywide organizational and operational goals.[14]

Transforming a DOT and a human resources department can be intimidating, and may be a lower priority option for a public agency tight on time and funding. However, for a new DOT to exist, Pynes (2004) emphasizes the importance of coordinating across functions and departments, employees and management. In turn, greater interdepartmental coordination will encourage continuous innovation.[15]

## 1.2.4   Hiring Practice Reform

The Pendleton Act of 1883, enacted federal civil service protocols that consequently have made for unwieldy hiring processes in local government. This, along with the increase of unionizations and collective bargaining contracts, has hindered human resources' ability to hire the most qualified candidates. Donahue (2002) argues that the complexity of the civil service and unionization systems has constrained managers from achieving performance objectives.[16]

Journalist Julia Ziegler offers that current processes are confusing and lengthy. Hiring with strict recruiting rules with civil servant qualifications has become an over-extended process that is frustrating and immobilizing to managers and executives. However, local agencies are not alone. Supervisors at the federal

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[12] R. Paul Battaglio and Stephen E. Condrey, "Civil Service Reform Examining State and Local Government Cases," *Review of Public Personnel Administration* 26, no. 2 (June 1, 2006): 118–38, doi:10.1177/0734371X06287200.

[13] Ibid.

[14] Ibid.

[15] Pynes, "The Implementation of Workforce and Succession Planning in the Public Sector," *Public Personnel Management*, 2004, 389–404.

[16] Amy Kneedler Donahue, Sally Coleman Selden, and Patricia W. Ingraham, "Measuring Government Management Capacity: A Comparative Analysis of City Human Resources Management Systems," *Journal of Public Administration Research and Theory* 10, no. 2 (April 1, 2000): 381–412.

level are up against the same outdated recruitment systems. Defense Secretary Ash Carter, empathizes, offering that "…the current personnel management system is based on important core principles, [but} those principles are operationalized and inflexible…"[17]

***How is this achieved?***

Naff et al. (2010) strongly recommend that department managers play a more active role in the hiring process. Staff-level employees should be leveraged during the interview process by designing job descriptions, and being active participants during the interview phases. In addition, a growing number of employers are turning to social media to recruit for a more diverse demographic. The National Institute of Health and the National Security Agency have been government agencies leading this effort.[18]

## 1.2.5   Internal Knowledge Building

> "Knowledge is a critical organizational resource that provides a sustainable competitive advantage in a competitive and dynamic economy…organizations needs to emphasize and more effectively exploit knowledge-based resources that already exist within the organization."[19]
> – S. Wang and R. Noe, 2004

Plano, Texas has been a model city for staff knowledge building. Nearly fifteen years ago, the city of 274,000, designed the "MP3" program (Manage Preparation Program) to elevate staff to advanced positions. Areas of skill development include interpersonal skills, conflict resolution, results orientation, and team decision-making, all of which are conducted in a formal classroom and outside of the regular workday.[20]

Plano's curriculum promotes communication and professional development. Molding and amending the Plano model to tailor Oakland's unique needs would be possible by developing a work plan, which will be discussed in the following section. For more information on Plano's MP3 program, please refer to Case Study 1.

Leonard et al., (2014 suggests that organizational structures are critical for internal knowledge building. Numerous researchers have shown that environments that provide open workspaces, and encourage communication incentives, such as, recognition and salary bonuses for sharing knowledge with colleagues.

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[17] Julian Gould-Williams, "HR Practices, Organizational Climate and Employee Outcomes: Evaluating Social Exchange Relationships in Local Government," *The International Journal of Human Resource Management* 18, no. 9 (September 1, 2007): 1627–47, doi:10.1080/09585190701570700.

[18] Katherine C. Naff, Norma M. Riccucci, and Siegrun Fox Freyss, *Personnel Management in Government: Politics and Process, Seventh Edition* (CRC Press, 2013).

[19] Sheng Wang and Raymond A. Noe, "Knowledge Sharing: A Review and Directions for Future Research," *Human Resource Management Review* 20, no. 2 (June 2010): 115–31, doi:10.1016/j.hrmr.2009.10.001.

[20] City of Plano, "Management Preparation Program Plano" (Plano, Texas: National League of Cities, 2002), http://ipma-hr.org/sites/default/files/pdf/BestPractices/bp_Plano.pdf.

The "knowledge economy" is an inexpensive, co-benefit that allows local agencies to stay competitive with private markets.[21]

## Case Study 1    Plano, Texas

Beginning in 2003, the City of Plano, Texas took a proactive approach to curb the pending wave of retirements and declining city performance by implementing the city's first succession planning program. Entitled, the Management Preparation Program of Plano, or colloquially, 'MP3,' the program aims to methodically heighten the capacity of the current Applying theories and practices based from conflict resolution, mediation, public relations and team decision making, the program aims to "maximize emotional, technical and interpersonal skills."

To enforce internal coordination across the city, the city manager coordinated with the city's human resources department to create a succession plan, which is the process of building up the knowledge base of current staff. After reviewing numerous examples of succession plans from both the public and private sectors, Plano leadership created a 300-400 hour, three-phase program to improve their workforce's cogitative and leadership skills. These phases are:

1. **Application process:** employee applications are submitted by managerial staff or submitted on one's own. Requirements include a Bachelor's degree and three years of supervisory experience, as well as letters of support from supervisors.
2. **Assessment process:** applications are evaluated by based on one's leadership qualities, skills, knowledge and abilities. A committee comprised of executive directors narrows the applicants to 15 candidates. Candidates then participate in day-long assessment.
3. **Development of "cohort atmosphere":** participants meet regularly for seminars (3-4 hours) for one full year. A field-work component includes: visits to school district offices, public housing authorities, and local institutions. Each participant works with a senior manager 8-12 hours per month, and conducts research and produces a report for council.

Current courses include:

- Change management
- Contemporary leadership
- Leadership effectiveness
- Leading change
- Problem solving and decision making

"What began as a succession initiative to ensure that retirements of tenured managers would not negatively impact delivery of services to citizens of Plano has become an organization-wide initiative to promote continuous learning and professional development"
– City of Plano, 2002

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[21] Dorothy Leonard, Walter C. Swap, and Gavin Barton, *Critical Knowledge Transfer: Tools for Managing Your Company's Deep Smarts* (Boston, Massachusetts: Harvard Business Review Press, 2014).

Employees of the city of Plano, TX have noticed a considerable change in the office since the program's launch. Improvements include:

- Communication improvements across the staff and departments
- Cross-functional working teams
- Supply of well-trained leadership
- Improved employee engagement
- "Subjects previously thought 'closed to discussion' are now 'open to discussion'"
- "Challenges seen as opportunities"

The creation of Plano's MP3 Program has led to the formation of an employee-mentoring program called Mentoring Circles, Issue Forum, a program started by human resources to disseminate executive-level information to staff-level employees, and a service prioritization study to guide fiscal planning across all city departments.[22]

### 1.2.6  External Coordination

External partners must be incorporated into the planning, design, and implementation process, for a capital project to reach completion. As planning becomes increasingly more sophisticated, local governments are needing to rely on consultants to provide expertise and advice.[23] Berman & Korosec suggests broadening the pool of stakeholders to encourage more citywide acceptance, and widespread support will sustain the project when challenges arise.[24]

Berman and Korosec, 2005 outline techniques on how to coordinate with outside partners. An approach increasingly acknowledged within the public sector is "shared governance," and is a process of meeting with stakeholders, assessing the problems together, proposing alternatives, and jointly monitoring. Berman and Korosec's research echoes finding by other like authors, who have recognized that managerial employees are essential for fostering relationships with external partners. Taking risks and involving other jurisdictions and organizations builds a DOT's capacity.[25]

However, despite an overall positive regard for coordinated planning, the literature notes that some jurisdictions lack the staff expertise to monitor an elaborate process to engage outside stakeholders. Some authors are hesitant that a coordinated planning process is not fully inclusive of all persons. And, understandably, those in managerial positions are often pressured to move a project through a pipeline quickly to appease city council members.[26]

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[22] City of Plano, "Management Preparation Program Plano."

[23] Carolyn G. Loh and Richard K. Norton, "Planning Consultants and Local Planning," *Journal of the American Planning Association* 79, no. 2 (April 3, 2013): 138–47, doi:10.1080/01944363.2013.883251.

[24] Evan M. Berman and Ronnie L. Korosec, "Planning to Coordinate and Coordinating the Plan Evidence From Local Governments," *The American Review of Public Administration* 35, no. 4 (December 1, 2005): 380–401, doi:10.1177/0275074005280308.

[25] Ibid.

[26] Ibid.

For public agencies interested in making the above improvements a reality, literature suggests that workforce planning be the ribbon that ties together coordination initiatives. Workforce planning is the formal process of organizing staff to achieve department goals, swiftly. Nebraska, Texas, Iowa, and Washington are leading the effort of incorporating workforce plans into the public sector. Traditionally, workforce planning has been practiced within the private sector.

The National Academy of Public Administration suggests that workforce plans should be co-developed with the mangers of the DOT and the personnel staff within the human relations department. Together, gaps are identified within the current staff, evaluating whether there is an effective utilization of employees, and an action plan is created which anticipates future goals and required partnerships.[27]

## 1.3   Interview Research Design

In total, fifteen interviews were conducted – five interviews with city staff and ten interviews with local stakeholders and academic scholars. Interviews lasted on average from thirty minutes to one hour.

To gain insight into the City of Oakland's current state of affairs on coordination activities with respect to transportation planning, five in-depth interviews were conducted within the agency's public works department. Interviews were conducted in a conversational format to encourage interviewees to openly raise topics and discuss concerns about the current state of the city. Drawing from the literature discussed above, the following questions were developed to guide the interview:

1.   Are there coordination efforts between the public works department, transit agencies and human resources?
2.   Are internal work plans developed to effectively pipeline projects from idea to development? To what extent?
3.   What is the relationship between internal and external agencies? Who is the lead department typically working with for external agencies?
4.   Are there internal development and training programs to improve internal operations and knowledge, rather than hiring consultants?
5.   To what extent, if any, do you see redundancies in work products? Are there internal policies to remove redundancies in work projects? (E.g. dig once policies)
6.   What are some techniques to promote improved internal and external coordination? To what extent will these been implemented in the DOT and how so?

Following the collection of interviews from current employees, including managerial and staff level positions from both transportation planning and engineering departments, interviews were assessed and divided based on the following themes and categories: overall assessment, management, staffing, human resources, trainings, and external coordination.

In conjunction with "in-house" interviews, ten interviews were conducted to gain regional insights and recommendations from external stakeholders and academic scholars. Organizations interviewed included

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[27] Pynes, "The Implementation of Workforce and Succession Planning in the Public Sector."

regional government agencies, transit planning consultants, and sister cities across the United States. Similarly to the in-house interviews, these interviews were conducted in a conversational format, and transpired from similar questions as noted above for the Oakland-based interviews.

## 1.4   Results and Findings

Based on fifteen in-depth interviews, the following perspectives on the current coordination practices were aggregated under the following sub-topics: Management, Staffing Constraints and Needs, Workforce, Training, and External Coordination.

The interviewees collectively suggested that the department of transportation, currently housed within Oakland's public works division, needs a strong mission statement, and a set of goals to motivate employees and encourage innovation. A current transportation engineer remarked that the level of disorganization has caused the department to be more reactionary, rather than proactive.

Interviewees' desire improved managerial practices and request improved dynamics between leadership and staff. At present, there is an unclear hierarchy of decision-making. Furthermore, a senior transportation planner offered that that he feels unsupported and discouraged when introducing risker project proposals to his supervisors. "The management likes to play it safe." Beyond current staff perspectives, many external stakeholders emphasize the need to improve managerial accountability within their own agencies. One interviewee, currently employed as a transportation planner for the city of San Francisco, shared that those currently in positions of leadership are often very knowledgeable, but do not have background in project and staff management to run a project smoothly and efficiently.

Current staff interviewees feel the weight of the understaffed department. "Projects get bounced around until they land on someone." Unprompted, an interviewee within transportation engineering, noted the current weaknesses of the hiring process. "Current job classifications shape who is hired, but job descriptions cannot detail job specificity." External interviews offered similar sentiments; increasing the department to the appropriate staffing levels, and defining job roles would systematize how projects are distributed across departments and employees.

Oakland interviewees generally agreed that investing in training and knowledge building would be advantageous for the department. (As detailed in the literature review, these trainings would be formal courses including project management; decision-making, and advancing technical skills.) In the last few years, employees have attended NACTO, an annual conference that speaks to innovative transportation planning practices. Although setting aside travel funds to pursue formal trainings can be a burden to local agencies, current employees see the benefit, with many sharing that attending national conferences has been a positive and worthwhile experience. An interviewee from a regional funding agency illuminated that, "local governments need to be held to a higher educational standard."

Of final note, interviewees were in consensus about needing to improve external coordination processes. The department's coordination with AC Transit is in need of improvement; as one senior manager within transportation engineering argued, "AC Transit wants us to be more proactive when we have often been more reactive, and they aren't wrong." Areas of improvement include designing dig-once policies and

reducing consulting and transaction costs. Furthermore, staff-level interviewees stressed the need for interdepartmental coordination, this includes improved interactions between the following departments: Planning and Zoning, Transportation Engineering and Planning, Human Resources, and the city's Administrator's Office.

## 1.5   Recommendations and Conclusions

Across the country, we are witnessing similar cities, as well as states, beginning to reform current practices. It is in the Oakland's best interest to follow suit and apply the best practices articulated across the literature and by local stakeholders. The following recommendations provide concrete suggestions that should be integrated as part of the new and innovative Oakland DOT.

- **Establish a formalized mentoring program between senior management and the staff.** Interviews with Oakland transportation staff suggest that currently a barrier exists between managerial and staff-level employees, which are consonant with the literature.[28] Mentorship programs have been found to improve interagency trust and accountability. Rooted in social exchange theory, mentorship programs can encourage experiential learning, and superior performance.[29] If there is enough buy-in from leadership and rules of reciprocity are established, mentorship programs can harness worker engagement. Case examples include San Mateo County, Santa Clarita, Fairfield, and San Luis Obispo.

- **Elevate human resources.** The formation of a new DOT provides an opportunity to reset expectations for what human resources' role should and can be within an agency. HR personnel have strong insights into succession and workforce planning that should be brought into the new DOT. The Society of Human Resource Management models and encourages improved interdepartmental coordination to bring awareness to the most critical issues.

- **Reform the current hiring processes.** Following suit with many U.S. cities and states, current hiring practices need to be amended to allow the most qualified candidates to be hired. Reforms should include removing civil service requirements and allowing managerial staff to be involved at the start of the recruitment process period. Furthermore, social media platforms should be used for job recruitments, while recognizing that some applicants may have restricted or little internet access due to a phenomenon known as the digital divide.

- **Incentivize internal training knowledge.** Leading cities, including Plano, Texas, have formulated management training programs to encourage structured training and development programs. Oakland would benefit from the establishment of job-specific, action-oriented and performance management programming. Courses could include leadership orientation, strategic goal development, decision-making, and mentorship strategies. To avoid high expenditures for instituting training programs, local agency employees are teaching each other through informal

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[28] Romzek and Dubnick, "Accountability in the Public Sector."
[29] Saks, "Antecedents and Consequences of Employee Engagement."

lessons; this encourages internal knowledge transfer and increases a public agency's competitive advantage.[30]

▪ **Improve external relations.** Interviews conducted with public administration scholars suggest that it is in the city's best interest to seek out non-traditional partnerships to improve regional coordination. Partnering with neighboring cities and private organizations would be advantageous for a city positioned at the center of Bay Area transportation.

Furthermore, regional funding stakeholders offer that Oakland needs to expedite the implementation of projects once grants have been received. Delaying the delivery of a project reflects poorly on the department, and discourages funders from continuing to fund Oakland's pipeline projects. Increasing staff and improving managerial accountability can expedite implementation. Additionally, a project that is too complex is less competitive in a funding cycle; therefore, working collaboratively across departments will reduce ensure that the most plausible projects are submitted. Sometimes, less is more.

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[30] Molm, Takahashi, and Peterson, "Risk and Trust in Social Exchange."

# 2  Funding

## 2.1  Problem Statement

The City of Oakland funds its transportation system via a myriad of federal, state, regional, and local sources. Oakland receives these transportation funds either as direct pass-through from the Alameda County Transportation Commission (ACTC) or through grants submitted on a competitive basis to ACTC or directly to the funders. Often, the pass-through funds are established by formulae that are based mainly on population. While Oakland receives the largest amount of funds in Alameda County as it is the most populated city in the county, Oakland's impact as a major regional employment center and transportation hub extends beyond Alameda County. Therefore regional funding allocation is the topic of this study.

As an employment center, regional destination and due to its geographic location on the Bay, Oakland carries a disproportionately high share of trip ends and throughput traffic resulting in it being ranked among America's worst traffic bottlenecks.[31] Oakland is a gateway from the East Bay into the employment center in San Francisco. The auto and truck throughput traffic in Oakland significantly impacts the region's economy, growth, air quality and the environment. Since Oakland serves as a key contributor to Bay Area jobs and housing, Oakland's transportation system needs to be high-performing and sustainable in order to optimally facilitate the mobility of employees and residents in the region. Moreover, the regional throughput traffic through Oakland puts a strain on the city's provision of local transportation services.

The constant need for local road maintenance directly impacts Oakland's ability to fund for and provide multimodal transportation services such as enhanced public transportation, and bike and pedestrian infrastructure. Oakland estimates that it has a $443 million (and growing) shortfall in deferred street maintenance and over $30 million in needed sidewalk repairs.[32]

Given these funding needs and Oakland's role in regional economic growth, this study aims to examine funding at the regional level, specifically the One Bay Area Grant (OBAG) program and its funding formula, in order to develop a strategy to redistribute funds to cities that accommodate a high concentration of uses and throughput of regional commuters.

The following sections detail the resultant study. The report begins with an examination of the existing maze of funding sources. A review of the literature reveals the imbalance of funding allocation between rural and urban geographies, and more importantly, reveals that there is a scarcity of research on this topic of funding allocation. Research methods discussions leads to key results illustrating that Oakland experiences high concentrations transportation usage based on employment and throughput traffic patterns. The study concludes with two recommendations for the Oakland DOT to best leverage its funding capacity.

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[31]American Highway Users Alliance, "Unclogging America's Arteries: Prescriptions for Healthier Highways," accessed December 9, 2015, http://www.highways.org/2015/11/unclogging-study2015/.

[32] "Oakland Streets Fact Sheet 2014," accessed December 10, 2015, http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak049885.pdf.

## 2.2  Existing Funding Sources and Programs

Transportation funding in the U.S. is highly complex. Funding sources are available at all levels of government and in the case of federal funds, these funnel to the state, then to the regional, then county, transit agencies, and finally to cities and departments of transportation. Federal and state transportation user fees have historically been the main source of transportation funding in the U.S., but the revenue-generating capacity of these fees has waned  significantly in  recent decades.[33] Currently,  almost all transportation projects require multiple funding sources.

Figure 2 below provides an overview of transportation funding sources in California and which highlights the complexity of transportation infrastructure funding.
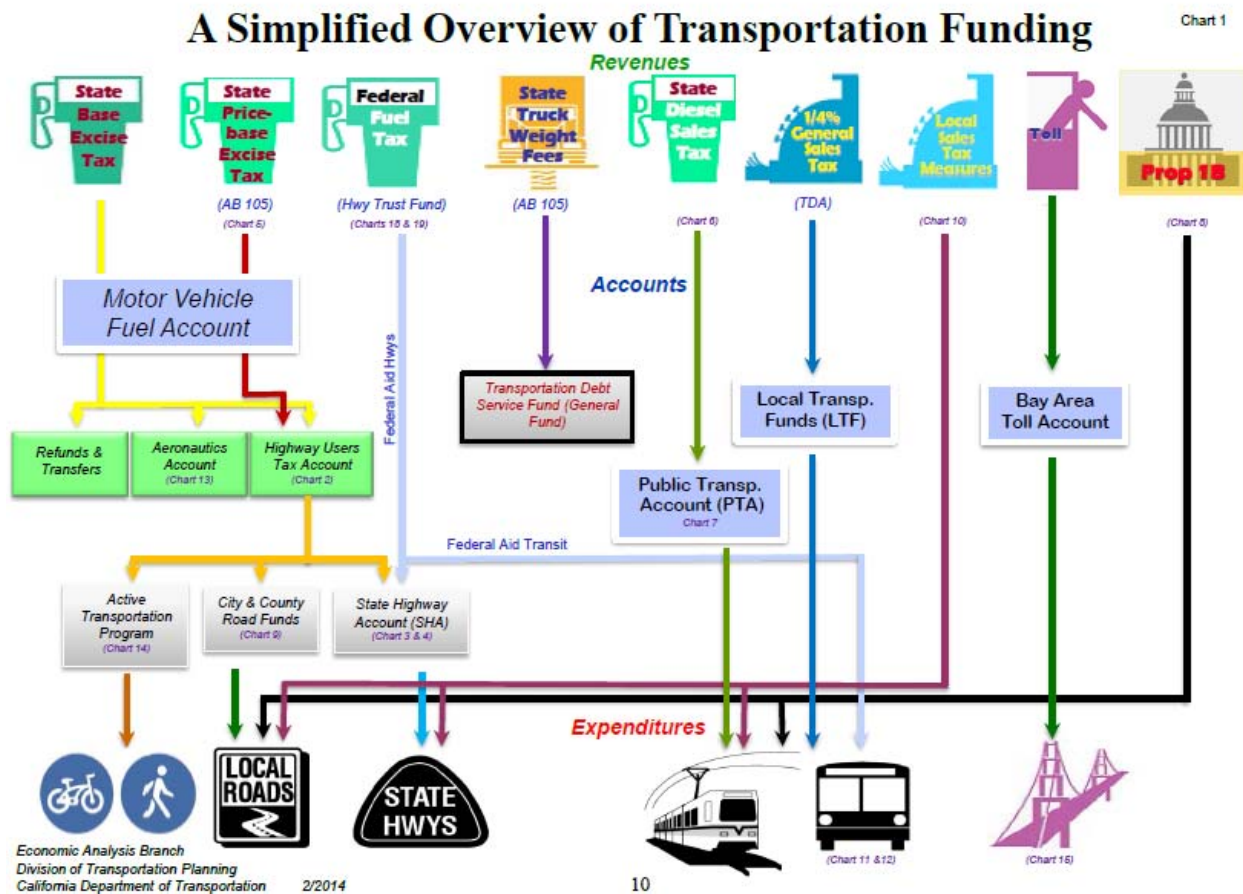


*Figure 2: Transportation funding sources in California[34]*

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[33] Todd Goldman and Martin Wachs, "Quiet Revolution in Transportation Finance: The Rise of Local Option Transportation Taxes," *University of California Transportation Center*, 2003.

[34] Caltrans, "Transportation Funding in California," 2013, http://www.dot.ca.gov/hq/tpp/offices/eab/fundchrt_files/Transportation_Funding_in_CA_2014.pdf.

It is beyond the scope of 218 Consultants to analyze the full magnitude and complexity of transportation funding available in California and the Bay Area. Instead, this study will focus on one specific grant program, the One Bay Area Grant (OBAG) that is administered at the regional level.

As discussed in the literature review section, the U.S. Congress and California state legislature have increasingly provided greater grant control and flexibility over transportation funding to regional planning bodies, commonly known as Metropolitan Planning Organizations (MPOs). As such, MPOs are ever more important for cities in seeking out transportation funding.

The Metropolitan Transportation Commission (MTC) is the designated MPO for the nine-county San Francisco Bay Area region and is required to prepare and endorse a multi-year Transportation Improvement Program (TIP). The TIP includes federal, state, and local funds[35]. Projects and funding included in the TIP must be consistent with the agency's long range Regional Transportation Plan (RTP).

In May 2012, MTC approved a new funding approach that directs specific federal funds to support more focused growth in the Bay Area. The One Bay Area Grant (OBAG) program commits $320 million in grant funds in fiscal years 2012-13 through 2015-2016. The source of the funds is from the current federal surface transportation authorization legislation, MAP-21 (Moving Ahead for Progress in the 21st Century) Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) program. MTC estimates that the OBAG program would be funded at $14.6 billion over 28 years, which is the life of its long range regional plan, Plan Bay Area. According to MTC, OBAG is "a new funding approach that better integrates the region's federal transportation program with California's climate law (Senate Bill 375, Steinberg, 2008) and the Sustainable Communities Strategy. Funding is targeted toward achieving local land-use and housing policies."[36]

The distribution of OBAG funds to counties is based on the following factors: population, past housing production and future housing commitments, and efforts to produce low-income housing[37]. Efforts for housing are determined by the Association of Bay Area Governments (ABAG) Regional Housing Needs Assessment (RHNA) (Figure 3).

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[35] Metropolitan Transportation Commission, "Resolution No. 4035," 2012.
[36] "OneBayArea Grant Program," accessed December 11, 2015, http://www.mtc.ca.gov/funding/onebayarea/OBAG_flyer.pdf. MTC, "MTC -- Funding -- OneBayArea Grant Program," accessed December 11, 2015, http://www.mtc.ca.gov/funding/onebayarea/.
[37] Metropolitan Transportation Commission, "Plan Bay Area: Strategy for a Sustainable Region," 2013.
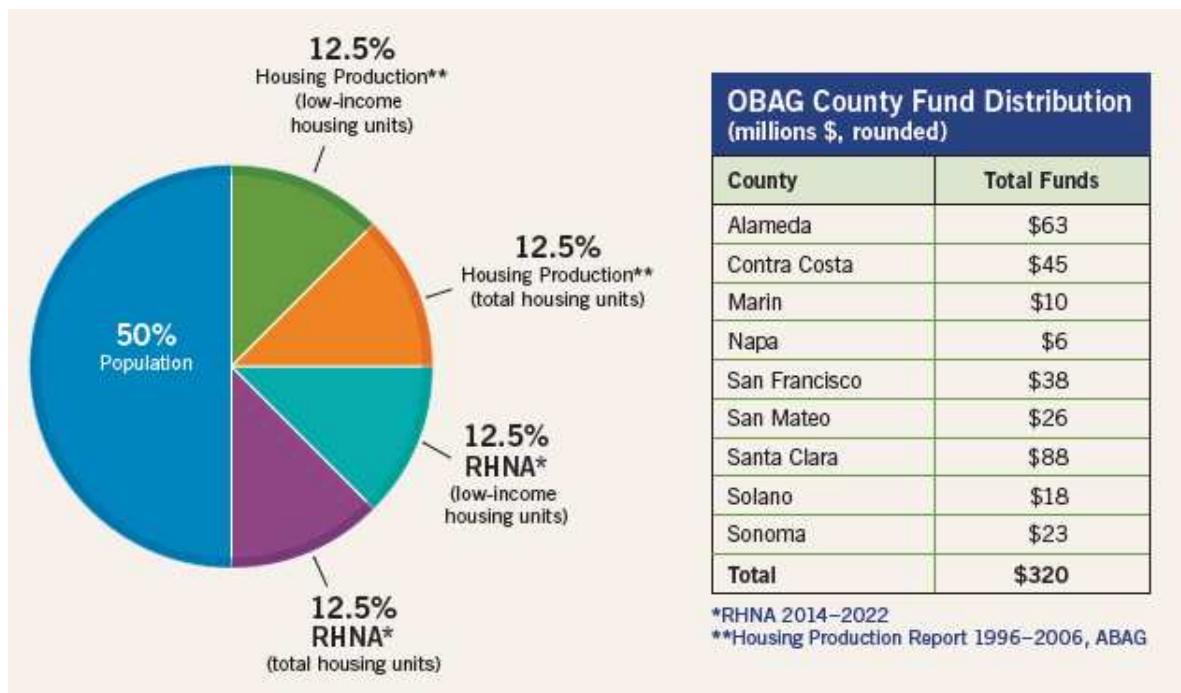
*Figure 3: One Bay Area Grant distribution formula, FY 2012-2013 through FY 2015-2016*

Figure 4 shows the OBAG funds allocation for fiscal years 2012-13 through 2016-17. Alameda County received the second highest amount, of approximately $64 million, based on the current funding formula.[38]

| One Bay Area Grant (OBAG 1) (millions $ - rounded) | | 4-Year Total *** | FY 2016-17 | 5-Year Total |
|---|---|---|---|---|
| Counties | | | | |
| 1 | Alameda | $63 | $1.0 | $64 |
| 2 | Contra Costa | $45 | $0.8 | $46 |
| 3 | Marin | $10 | $0.7 | $11 |
| 4 | Napa | $6 | $0.7 | $7 |
| 5 | San Francisco | $38 | $0.8 | $39 |
| 6 | San Mateo | $26 | $0.7 | $27 |
| 7 | Santa Clara | $88 | $1.1 | $89 |
| 8 | Solano | $18 | $0.7 | $19 |
| 9 | Sonoma | $23 | $0.7 | $24 |
| OBAG Total:** | | $320 | $7 | $327 |
| *** 4-Year OBAG amounts revised October 2012 to reflect revised RHNA, released July 2012. | | | | 40% |

*Figure 4: OBAG funds allocation for FY 2012-2013 through FY 2016-2017*

Once the OBAG funds are channeled to the Alameda County Transportation Commission (ACTC), ACTC is responsible for local project solicitation, evaluation, and selection. ACTC is required to use 70% of the

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[38] Metropolitan Transportation Commission, "Resolution No. 4035."

funds to support Priority Development Areas (PDAs), which are areas identified under the regional Plan Bay Area as infill development opportunity areas within existing communities. The transportation projects are selected based on an approved PDA Investment and Growth Strategy developed and approved by the ACTC.[39]

Appendix A shows the project selection criteria, which is based on criteria used in past Alameda CTC funding cycles as well as new requirements that are mandated by the OBAG program.[40] Employment and throughput traffic are not explicitly stated selection criteria, although points are given for one of the criteria – the PDA Supportive Investments – which calls out connectivity to jobs/transit centers/activity centers for a PDA.

Table 1 shows the projects for which Oakland has received under the first phase of OBAG funds distribution.[41] This represents approximately 32% of the $63 million that Alameda County receives from OBAG funding phase 1.

*Table 1: Oakland projects funded in OBAG phase 1, FY 2012–2013 through FY 2016–2017*

| Project | Amount |
|---|---|
| **Oakland Complete Streets** | $3,851,000 |
| **7th Street West Oakland Transit Village, Phase 2** | $3,288,000 |
| **Lakeside Complete Streets and Road Diet** | $7,000,000 |
| **Peralta and MLK Jr. Way Streetscape, Phase 1** | $5,452,000 |
| **Lake Merritt BART Bikeways** | $571,000 |
| **Total** | **$20,162,000** |

## 2.3   Research Methods

A mixed-methods approach was undertaken for this analysis. This included a literature review, five interviews with key informants and a geographic information system (GIS) analysis that examined employment and throughput data. The literature review was conducted to assess the overall state of transportation funding at the federal, state, and local levels. The literature review consisted of scholarly academic research as well as policy documents and staff reports from agencies such as state departments of transportation, metropolitan transportation commission, county congestion management agencies, air resources board, and the city of Oakland and Port of Oakland. The Port of Oakland was closely examined due to its role as a major regional employer and economic driver. Further readings from locally based research and advocacy organizations such as SPUR and TransForm provided a diverse mix of perspectives.

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[39] "Alameda County Implementation: One Bay Area Grant Program," accessed December 11, 2015, http://www.alamedactc.org/files/managed/Document/8832/AlamedaCTC_OBAG_Fact_Sheet_091112.pdf.
[40] Ibid.
[41] "OneBayArea Grant Program Report Card," accessed December 11, 2015, http://www.abag.ca.gov/abag/events/agendas/0021414a-Item%2005,%20OBAG%20Report%20Card.pdf.

The One Bay Area Plan, the California Department of Finance, and California Department of Transportation provided sources of economic, population and funding forecast.

Interviews with staff from the MTC, Alameda County Transportation Commission, Denver Regional Council of Governments, Association of Bay Area Governments, and the City of San Jose provided varying perspectives on transportation funding. Interviewees were selected because of their deep knowledge about transportation funding and the cities of Denver and San Jose were selected as case studies to compare how they receive funds from their MPOs. The interviews were in-depth semi-structured interviews. Interview questions were informed by the literature review. Interviews lasted approximately one hour each.

Due to Oakland's significant need for surface transportation maintenance as well as negative externalities associated with automobile travel, such as traffic congestion, a GIS analysis of traffic volume, truck traffic, and congestion was conducted. Caltrans data was used to infer the level of vehicular traffic in and through Oakland. Although Oakland also carries a disproportionately high amount of transit volume, transit can mitigate traffic congestion, reduce GHG emissions, and does not damage the roads to the same extent as automobiles. Thus, transit is not included directly in this analysis.

## 2.4   Literature Review

It is well known in the transportation field that the standard mechanisms for financing transportation are insufficient to meet current demands. The federal and state motor fuel excise taxes, or "gas tax" has been the primary means for financing roads and transit since the 1930s.[42] Yet declining tax revenue is unable to keep up with inflation and system costs. Additionally, many states restrict the gas tax revenue to mainly highway purposes. Wachs noted that cities, counties, and transit districts are increasingly turning to "local option transportation taxes" to fund new transportation investments.[43]

Puentes and Prince point out that the gas tax distribution often penalizes cities and urban areas in favor of rural or suburban fringe. Downs and Puentes (2005) argue that newly developing suburban areas often have transportation demands that differ radically from those of central cities. They state "since suburban portions of most metropolitan areas have larger representation on regional MPO bodies, they are able to craft regional transportation plans that focus on expanded and new transportation infrastructure rather than on rehabilitation or repairs."[44] In contrast, central cities' greatest needs typically are related to maintenance and renewal of existing facilities rather than expansion. For example, according to the Denver Regional Council of Governments, under the Colorado Department of Transportation funding allocation, the Denver region receives 51 cents for every $1 paid in taxes.[45]

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[42] Robert Puentes and Ryan Prince, "Fueling Transportation Finance: A Primer on the Gas Tax," in *Taking the High Road: A Metropolitan Agenda for Transportation Reform* (Brookings Institution Press, 2005), 45–76.

[43] Todd Goldman and Martin Wachs, "Quiet Revolution in Transportation Finance: The Rise of Local Option Transportation Taxes."

[44] Anthony Downs and Robert Puentes, "The Need for Regional Anticongestion Policies," in *Taking the High Road: A Metropolitan Agenda for Transportation Reform* (Brookings Institution Press, 2005), 169–94.

[45] Denver Regional Council of Governments, "2016-2021 Transportation Improvement Program," 2015.

MPOs such as the Metropolitan Transportation Commission have considerable financial power in allocating transportation funds to cities. According to Puentes and Bailey (2005), since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, MPOs have been granted greater control and flexibility over transportation funding allocation in their regions.[46] In California, three-fourths of federal and state highway and transit funds are designated by state law to be spent in accordance with priorities set by MPOs.[47]

Benjamin, Kincaid, and McDowell (1994) also have observed the varying levels of city representations on MPO boards. In particular, historically central cities were under-represented on the MPO boards as compared to its suburban areas due to one-vote policies.[48]

Further, Deakin and Goldman noted that other entities such as transit agencies and port authorities, both of which Oakland possesses, do not have any voting power on MPO boards.[49] Finally, Taylor's assessment of the equity implications of California's Transportation Development Act, and specifically his study of the Bay area transit operators, concluded that the larger, inner-city operators such as AC Transit carried overwhelmingly the largest share of the passengers and yet received a dramatically smaller share of the program's per capita funding allocation.[50] As a side note, Oakland is the only city in the Bay area where all of the BART lines run through its city center.

Innes and Gruber elucidated the variations in income, population, size, demographics, politics, economic base, and physical development patterns in the nine-county Bay Area. This variation makes it particularly challenging to establish region-wide consensus for any policy, and especially so pertaining to transportation funding allocation to the city local. The authors support stronger regionalism and recommend eliminating regional funding formula altogether in favor of increased funding for programs that assist the region in improving its performance and that can be allocated on a competitive basis based on merit.[51] Yet the practice of funding allocation based on formulae persists although with respect to

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[46] Robert Puentes and Linda Bailey, "Increasing Funding and Accountability for Metropolitan Transportation Decisions," in *Taking the High Road: A Metropolitan Agenda for Transportation Reform* (Brookings Institution Press, 2005), 139–67.

[47] Martin Wachs, "Improving Efficiency and Equity in Transportation Finance" (Brookings Institution Press, 2005), 77–100.

[48] Seth B. Benjamin, John Kincaid, and Bruce McDowell, "MPOs and Weighted Voting," *Intergovernmental Perspective* 20, no. 2 (1994): 31–35.

[49] Todd Goldman and Elizabeth Deakin, "Regionalism through Partnerships? Metropolitan Planning Since ISTEA," *Berkeley Planning Journal* 14 (2000): 46–75.

[50] Brian D. Taylor, "Unjust Equity: An Examination of California's Transportation Development Act," *Transporation Research Board*, no. 1297 (1991): 85–92.

[51] Judith E. Innes and Judith Gruber, "Bay Area Transportation Decision Making in the Wake of ISTEA: Planning Styles in Conflict at the Metropolitan Transportation Commission," *University of California Transportation Center*, March 1, 2001, http://escholarship.org/uc/item/7ck5n59x.

transit funds, MTC reviews transit operators' budgets and evaluates their service and overall performance.[52]

Finally, this literature review reveals that there is a scarcity of research on funding allocation and specific funding formulations. This report aims to provide one piece of a major missing gap in this area of study.

## 2.5   Results and Findings

This section discusses the major findings drawing from the literature review, interviews, a study of the impact of the Port of Oakland, and GIS analysis.

### 2.5.1   Oakland as an Employment Center

According to MTC-ABAG's Plan Bay Area projections, San Francisco, San Jose, and Oakland will accommodate 42 percent of housing growth and 38 percent of total job growth by 2040. Among these top three cities, Oakland is projected to have the highest percentage of job growth as shown in Table 2 below.[53] However, the OBAG program does not take jobs into consideration in its funding formula. Thus, a major employment hub such as Oakland, which stands to carry a disproportionate amount of trip destination traffic, would also be disproportionately strained in its provision of transportation services.

*Table 2: Projected job growth, 2010–2040. Source: MTC and ABAG.*

| Rank | Jurisdiction | Number of 2010 Jobs | Projected 2040 Jobs | 2010-2040 Job Growth | 2010-2040 Percent Job Growth |
|------|-------------|---------------------|---------------------|----------------------|------------------------------|
| 1 | San Francisco | 568,720 | 759,500 | 190,780 | 34% |
| 2 | San Jose | 377,140 | 524,510 | 147,380 | 39% |
| 3 | **Oakland** | **190,490** | **275,560** | **85,260** | **45%** |
| 4 | Santa Clara | 112,890 | 146,180 | 33,290 | 29% |

Oakland is by far the largest employment hub in Alameda County, as shown in Figure 5.[54] As of 2013, there were approximately 175,000 jobs in the city, accounting for approximately 28% of the jobs in Alameda County.

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[52] Metropolitan Transportation Commission, "The ABC's of MTC" (Oakland, Ca: Metropolitan Transportation Commission, October 2007), http://www.mtc.ca.gov/library/abcs_of_mtc/MTC-ABCs.pdf.

[53] The employment projection data was drawn from analysis conducted by the Association of Bay Area Governments. ABAG county-level employment projections were compared to projections conducted by the California Department of Finance and California Department of Transportation. http://www.dof.ca.gov/research/demographic/projections/documents/P-1_Total_CAProj_2010-2060_5-Year.xls; http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic_files/2013/Revised_Full_Report.pdf

[54] U.S. Census Bureau, Center for Economic Studies, "Work Area Comparison Analysis by Places (Cities, CDPs, Etc.)," accessed November 30, 2015, http://onthemap.ces.census.gov/.

Job Counts by Places (Cities, CDPs, etc.) in 2013
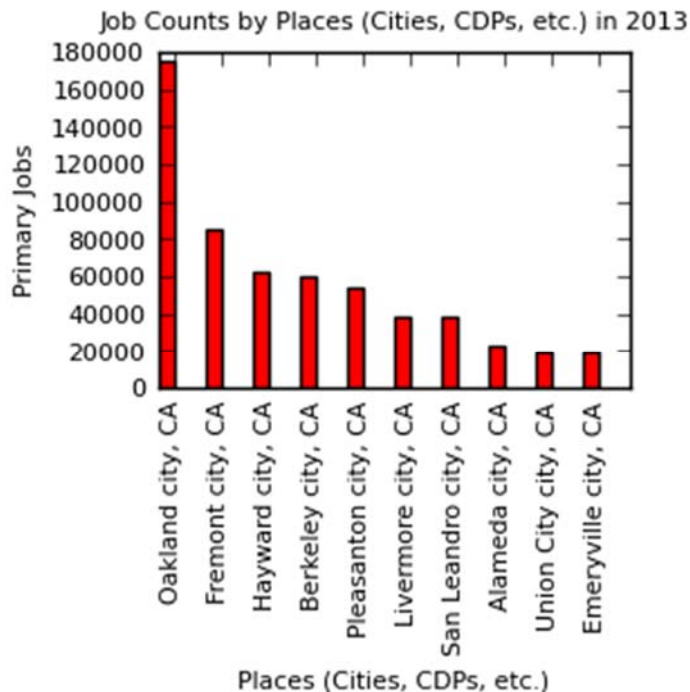
*Figure 5: Alameda County employment counts by city*

Table 3 below points to the worker inflow and outflow in Oakland.[55] This provides a snapshot of the possible regional impact to Oakland's transportation system because of the approximately 135,000 workers that travel to Oakland from various parts of the region; 110,000 residents of Oakland workers travel out of Oakland; and 41,000 residents of Oakland work in the city. Although these numbers do not capture the modes of travel, a report by the advocacy organization SPUR pointed out that only 24% of downtown workers take transit to and from work, meaning that the vast majority of employees still commute by automobiles.[56]

*Table 3: Worker inflow and outflow*

| | |
|---|---|
| Workers coming to Oakland from across the region | 134,659 |
| Oakland residents working outside of Oakland | 110,285 |
| Oakland residents who work in Oakland | 40,713 |

## 2.5.2   The Port of Oakland's Regional Reach

As previously noted, other entities such as transit agencies and port authorities do not have any voting power on MPO boards even though they are important economic, employment, and environmental drivers regionally. For ports in particular, the movement of freight, and the protection of production and distribution businesses, have important environmental, economic and equity implications for a region. In

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[55] U.S. Census Bureau, Center for Economic Studies, n.d., http://onthemap.ces.census.gov/.

[56] SPUR, "A Downtown For Everyone: Shaping the Future of Downtown Oakland," 2015.

the case of the Bay Area, the Port of Oakland plays a central role in these drivers as it is the nation's fifth busiest port and a major regional employer providing approximately 22,000 direct jobs in 2011. Altogether, the Port generates approximately 73,500 direct, induced and indirect jobs. In terms of potential impacts to Oakland's transportation system, as shown in Figure 6, the Port draws employees from across the region.[57]

The Port of Oakland serves not only Bay Area residents and industries but also provides a critical link to national and international markets for Northern California agriculture. MTC's *Goods Movement Initiatives* found that manufacturing, freight transportation, and wholesale trade account for nearly 40 percent of regional output, and that Bay Area businesses spend over $6.6 billion on transportation services.[58] According to the Bay Area Council Economic Institute, 90% of Bay Area trade in agriculture, wine, and heavy machinery by weight goes through the Port of Oakland. Furthermore, nearly all containerized cargo from Northern California passes through the Port of Oakland.[59]

| Place of Residency | Direct Jobs | Percent of Direct Jobs |
|---|---|---|
| **Alameda County** | 11,368 | 51.80% |
| Alameda | 1,465 | 6.68% |
| Fremont | 509 | 2.32% |
| Hayward | 1,021 | 4.65% |
| Oakland | 3,864 | 17.61% |
| San Leandro | 880 | 4.01% |
| Other Alameda | 3,627 | 16.53% |
| **Contra Costa County** | 2,979 | 13.58% |
| Richmond | 729 | 3.32% |
| Other Contra Costa | 2,250 | 10.26% |
| **Santa Clara County** | 530 | 2.42% |
| San Jose | 207 | 0.94% |
| Other Santa Clara | 323 | 1.47% |
| **Marin** | 324 | 1.48% |
| **Napa** | 94 | 0.43% |
| **Sacramento** | 268 | 1.22% |
| **San Francisco** | 1,968 | 8.97% |
| **San Mateo** | 963 | 4.39% |
| **Solano** | 597 | 2.72% |
| **Sonoma** | 221 | 1.01% |
| **Other CA** | 1,964 | 8.95% |
| **Other US** | 668 | 3.04% |
| **Total** | 21,943 | 100.00% |

*Figure 6: Direct jobs at the Port of Oakland*

This analysis demonstrates that City and Port of Oakland are major employment centers. However, in examining the OBAG funding formula, there is no direct accounting for employment patterns.

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[57] Martin Associates, "The Positive Job Creation & Economic Impacts of the Port of Oakland," 2011.

[58] Metropolitan Transportation Commission, "Goods Movement Initiatives," 2009, http://www.mtc.ca.gov/planning/2035_plan/Supplementary/T2035_Goods_movement_update.pdf.

[59] Bay Area Council Economic Institute, "In the Fast Lane: Improving Reliability, Stabilizing Local Funding, and Enabling the Transportation Systems of the Future in Alameda County," 2014.

### 2.5.3  Interviewee Perspectives

Bay Area funding agencies interviewed agreed that Oakland is well positioned to receive transportation funds. However, interviewees pointed out that Oakland has challenges with delivering projects. Oakland especially scores well on projects around sustainability and transit as well as other project measures such as green bike lanes. However, Oakland struggles with the speed in which the city delivers and implements the grants. This is perhaps due to staffing resources. Another concern that a funder mentioned is that the agency used to receive separate applications from each of Oakland's council members.

Alongside the institutional capacity to deliver on projects, interviewees also recommended that the city should not aim for overly complex projects that might in turn reduce its ability to be funded by regional, state, and federal programs. Moreover, increased complexity may cause considerable cost increases during implementation, which is one consideration that might make the project less competitive to secure funding. For example, complete streets projects provide the most tangible opportunity for addressing measures such as permeable paving; however, the city should be cognizant of the additional costs and schedule overruns associated with these added measures. In addition, to incorporate resiliency or more complex project components, interviewees suggested the city of Oakland should look for alternative ways of matching regional funds, and bond measures was specifically mentioned.

Interviewees also noted that ensuring regional equity and geographic balance is a difficult task to accomplish. For instance, an interviewee noted that in Alameda County, city representatives in the eastern part of the county often argue that the north county receives the largest portion of funding and that the eastern part should get a larger share. When prompted about the traffic impact of heavy trucks traversing Oakland mainly due to port activities, interviewees mentioned that Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act, has been the primary funder for port traffic improvement projects. The funding agencies provided support to Oakland in its efforts to solicit Prop 1B funds. However, the funding agencies noted that they do not take into consideration as much as they should the port's level of traffic and environmental impacts.

### 2.5.4  Auto and Truck Travel in Oakland

A GIS analysis was conducted to better understand auto and truck travel in Oakland as a major hub. Figure 7, Figure 8, and Figure 9 characterize the traffic in and around Oakland. The figures illustrate that Oakland experiences high volume of throughput traffic. Yet traffic throughput is currently discounted in the OBAG funding formula. While it is beyond this study to measure the traffic throughput of all the other municipalities in the region, the study recognizes that other municipalities may also experience similar traffic factors. In fact, interviewees from the City of San Jose pointed out that virtually all-major freeways traverse through the city. However, the figures are mainly to illustrate that traffic throughput are currently not taken into consideration in funding allocation formula.

Figure 7 below indicates that Oakland experiences heavy average daily traffic volume. The red dots indicate heavy traffic and are seen to be concentrated at the foot of the Bay Bridge and along I-80.
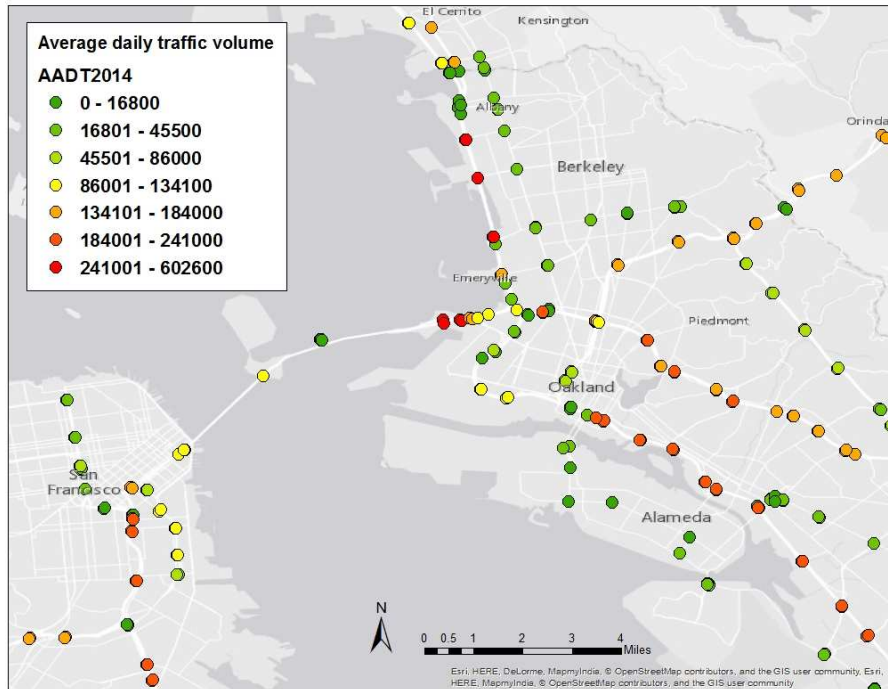
*Figure 7: Average daily traffic volumes on key roadways and freeways around Oakland*

Figure 8 below indicates that Oakland carries a disproportionately large amount of daily truck traffic, signified by the red dots.[60] Trucks put a great strain on local roads as well as heavy emissions.
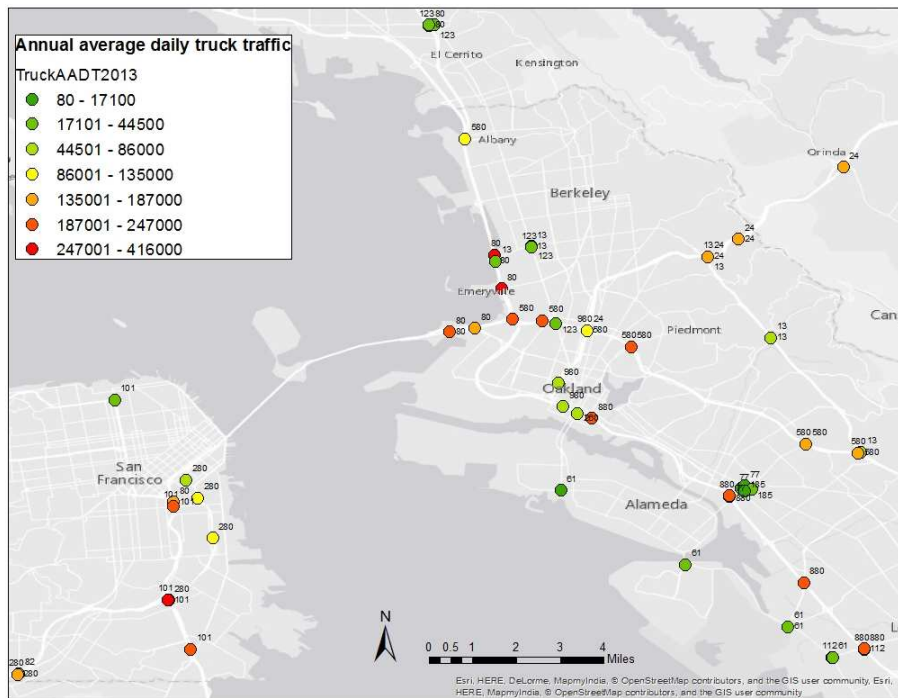


*Figure 8: Annual average daily truck traffic volumes on key roadways and freeways around Oakland*

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[60] Caltrans GIS Data, "Truck Traffic Volumes," n.d., http://www.dot.ca.gov/hq/tsip/gis/datalibrary/.

Figure 9 indicates that Oakland experiences more average delays due to bottlenecks.[61] The numbers represent the line segments of heavy congestion during AM and PM periods.
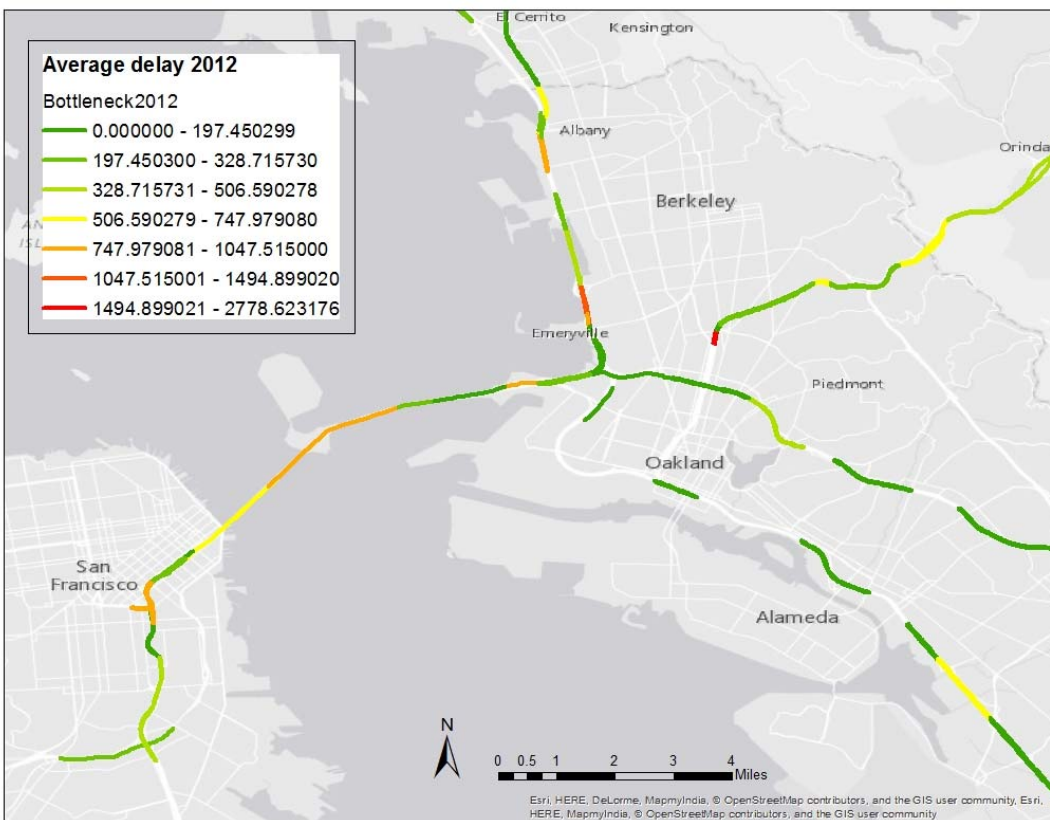


*Figure 9: Average delays due to bottlenecks in 2012 on key roadways and freeways around Oakland*

## 2.6   Recommendations and Conclusions

Based on the analysis above, 218 Consultants proposes that **the OBAG funding formula incorporate employment and throughput traffic factors to better reflect concentration of use in concert with the mission of SB 375 on GHG emissions reduction targets**. Oakland specifically has high concentrations of employment in and around transit hubs, which promotes non-automobile modes of travel and reduces regional vehicle miles traveled. The integration of employment factors alongside population and housing allocation needs would reduce the spatial mismatch that has historically beset cities and regions in the U.S.[62] The mismatch of housing situated away from employment centers can be exacerbated as a result of transportation funding allocation currently discounting employment factors.

The relationship of jobs location to affordable housing further warrants a closer look. As the affordability of housing in the Bay Area urban core becomes less tenable for segments of the population, these residents

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[61] Caltrans GIS Data, "Bottlenecks (2010-2012)," n.d., http://www.dot.ca.gov/hq/tsip/gis/datalibrary/.

[62] Robert Cervero, "Efficient Urbanisation: Economic Performance and the Shape of the Metropolis," *Urban Studies* 38, no. 10 (2001): 1651–71.

may need to move further away from their places of employment. Jobs-housing balance also promotes productivity. An analysis in the Bay Area found that areas with good labor accessibility and high employment densities were economically the most productive.[63]

Thus, transportation funding agencies should consider amending funding allocation formulae to reward cities and municipalities that strive to establish job concentrations in close proximity to housing. This spatial balance could reduce commute time, enhance public transit usage, curb outward residential and commercial development in the region, and assist the region to meet state-mandated GHG emissions reductions through SB 375. In particular, the OBAG program includes housing but does not include employment directly in the funding criteria.

Figure 10 below proposes to incorporate employment into the current distribution formula, shown in Table 4. Additional analysis is needed to refine the relative percentages for employment as well as separately the relative throughput traffic in the criteria. The percentages proposed are only to mimic one percentage of the current allocation to housing. It is hoped that the proposed formula spurs further deliberation in future OBAG funding cycles about how the program would evaluate projects that are in close proximity to not only affordable housing, transit, but also high quality job centers. Ultimately, municipalities such as Oakland may or may not receive more funding based on formula adjustments, however incorporating employment and throughput traffic factors may result in a more robust and equitable funding process.

There are major implications as to how funding is formulated. It is imperative that funding allocation be formulated in an equitable way whereby those jurisdictions that handle proportionately higher concentrations of uses and throughput traffic – in complement to housing and population measures – are taken into consideration. The two additional funding allocation factors proposed – employment and throughput traffic – considers the need for greater jobs-housing balance in mitigating climate change.

While the OBAG program is used as a case study, the results reflect a call for policy reflections of other funding programs to emphasize a more diverse set of factors in order to most effectively enhance transportation capacity in a climate change era.

*Table 4: Current OBAG funding formula*

| Category | Percentage |
| --- | --- |
| **Population** | 50.0% |
| **Housing production (low-income housing units)** | 12.5% |
| **Housing production (total housing units)** | 12.5% |
| **RHNA (low-income housing units)** | 12.5% |
| **RHNA (total housing units)** | 12.5% |

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[63] Ibid.
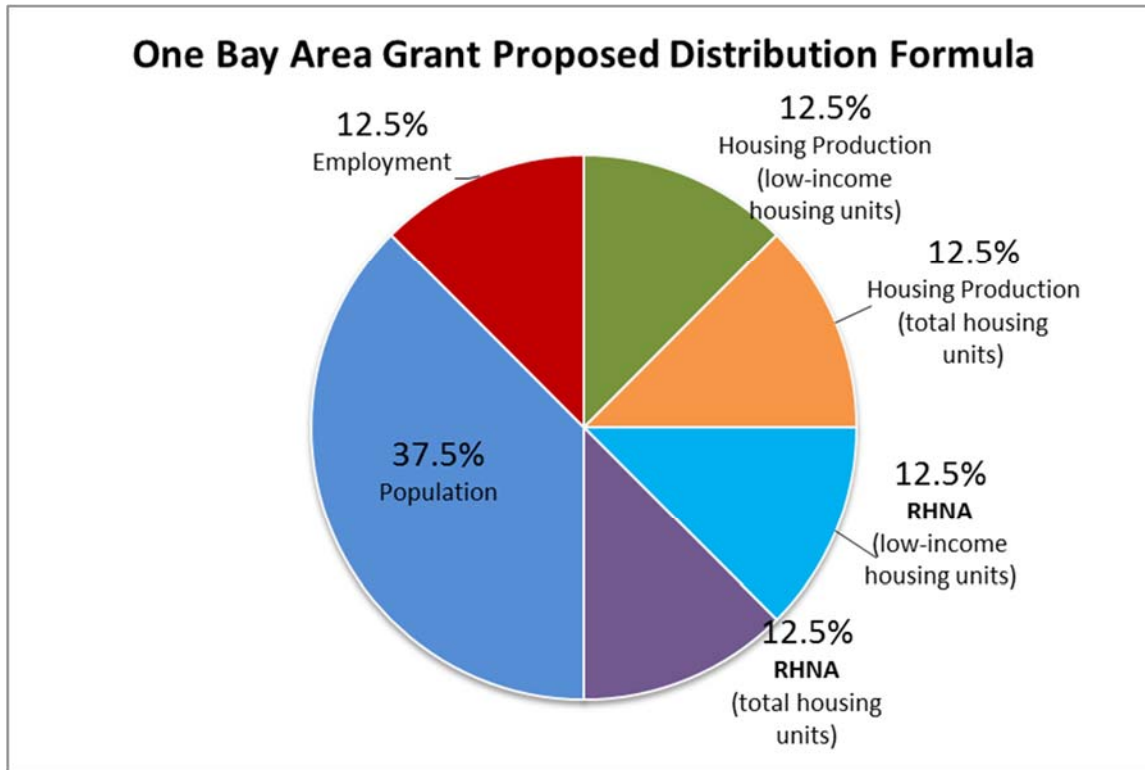
*Figure 10: OBAG proposed funding formula*

Based on interviewee perspectives discussed above, 218 Consultants recommends that the Oakland DOT **enhance its staffing and institutional capacity** to best leverage its advantage when seeking funds. This ensures that funding agencies can be fully confident that Oakland can deliver quality projects on time and within budget. The city should avoid duplicative encumbrances for city staff as well as funding agencies by streamlining grant submittals. Once funds are approved, the city needs to ensure that there is capacity to efficiently deliver on projects. As outlined in the chapters on Internal and External Coordination and Project Prioritization, by leveraging best practices in coordination and project prioritization, the Oakland DOT will be in a great position to seek out diverse sources of funding and effectively deliver on projects.

# 3   Public Interface

"If the planning profession exists, in part, to act as custodians of democratic dialog about the future of cities and
     the role that transit should play in cities, encouraging a positive presence on social media appears to be one
     way to foster better digital civitas."
     – L. Schweitzer, "Planning and Social Media," 2014

## 3.1   Introduction

Public participation has always presented somewhat of a problem to transportation planning, as
engagement and communication often prove difficult due to the technical aspects of transportation and
the long time scales of planning. A potential solution to this problem has presented itself in the form of
connectivity provided through the Internet: web-based and social media tools are generating opportunities
to supplement and support public engagement through information sharing, and creating new pathways of
engagement through the real-time, open dialogue nature of social media. However, the uses and potential
of these new tools are not well understood in the transportation planning profession. Public engagement is
still often solely focused around the public meeting or traditional issue reporting or comment systems. 218
Consultants have instead identified the "Public Interface", or the combination of traditional public
engagement through meetings, new media outreach via internet tools and social media, and any other
platform that involves information sharing and dialogue between the city and citizens, as a topic for study
to acknowledge the full range of avenues a department can use to interact with its constituents.

As Oakland's new DOT forms, it will have the opportunity to incorporate digital methods for citizen
engagement while developing a cohesive public interface. This portion of 218 Consultants research has
studied digital public engagement methods qualitatively and quantitatively, and provides
recommendations for combining these methods with more traditional public engagement platforms into a
comprehensive public interface for transportation planning and project delivery in Oakland. This chapter
examines best practices in the field of public engagement through a literature review and a case study of
the City of West Hollywood's online public engagement approach. With these best practices in mind, the
current state of public engagement in Oakland is analyzed qualitatively through an interview of city staff
and inventory of public engagement tools. Finally, this chapter uses passive observation of social media
postings to examine how Internet users are currently discussing Oakland's transportation system on social
media. Through these three avenues of inquiry, 218 consultants have developed a set of near term
recommendations for innovative and effective public engagement.

## 3.2   Literature Review

Governments and public agencies are formed for the explicit purpose of serving the public, so what exactly
is meant by the term "public engagement" is not always clear. Rowe and Frewer (2005) identify three types
of public engagement: public communication, where the information flows from the agency to the public;
public consultation, where the information flows from the public to the agency; and public participation,

where information is exchanged in a dialogue process.[64] Scholars suggests a best practice for taking these approaches in soliciting input from the public on civic projects requires inciting dialogue using a variety of interface media.[65] This involves a combination of emergent, internet-based tools and traditional in-person approaches.

Effective public engagement necessitates entities take a tactful approach to addressing the needs of populations within oversight jurisdictions. This might be best accomplished by gauging public perceptions of service provision in terms of satisfaction, and defining needs articulated by affected populations – rather than acting on these needs as described by oversight management officials.[66] Additionally, this requires framing and conducting public outreach via active, two-way communication channels such that trust-building is encouraged between governing agencies and their citizenry, thereby accommodating formation of synergistic, positive receptions to actions taken by either group.[67]

Frameworks suggested in the literature balance expertise with public input in a number of different ways. Most focus on creating a process that engages the public at all points of engagement by adhering to overall principles that value public participation.[68] While the specific recommendations differ between frameworks, most agree that engagement should allow for multiple pathways of engagement for different groups of participants, aim for two-way, actively curated dialogue, and measure success through robust performance metrics. In this way, engagement may encourage accountability of oversight agencies to public needs, and transparency in service provision planning and implementation by establishing clear expectations by which the state and the citizenry will work together to accomplish shared goals.

In recent decades social media has come to represent an important emergent platform by which the public can communicate about or with public agency service providers, and vice versa.[69] While it is widely recognized that much public interface between cities and citizens presently occurs at more traditional forums including public meetings, digital communications platforms have the potential to serve as new, critical outlets for effective engagement. Use of web-based media has becoming increasingly important in the emergent age of information sharing, and, while inherently limited in user need for digital infrastructure to access online platforms (a phenomenon labeled the "digital divide", where some residents

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[64] Gene Rowe and Lynn J. Frewer, "A Typology of Public Engagement Mechanisms," *Science, Technology & Human Values* 30, no. 2 (April 1, 2005): 251–90, doi:10.1177/0162243904271724.

[65] Susan Bregman, "Uses of Social Media in Public Transportation" (Transportation Research Board, 2012), http://books.google.com/books?hl=en&lr=&id=1jLJtXq1aS8C&oi=fnd&pg=PP1&dq=%22Current+systems,+some+of+which+are+old+and+in+need%22+%22demands+placed+on%22+%22the+need+for+local,+problem%C2%ADsolving+research.%22+%22by+the+U.S.+Department+of+Transportation,+TCRP%22+&ots=obWSMpp_Zs&sig=uN7nU4bA5QQKrXHlXfYWmGx9pAA.

[66] P. A Koushki, O. I Al-Saleh, and M Al-Lumaia, "On Management's Awareness of Transit Passenger Needs," *Transport Policy* 10, no. 1 (January 2003): 17–26, doi:10.1016/S0967-070X(02)00025-2.

[67] Da Scheufele, "Framing as a Theory of Media Effects," *Journal of Communication* 49, no. 1 (March 1999): 103–22, doi:10.1111/j.1460-2466.1999.tb02784.x.

[68] Jason Wagner, "Measuring Performance of Public Engagement in Transportation Planning," *Transportation Research Record: Journal of the Transportation Research Board* 2397 (December 1, 2013): 38–44, doi:10.3141/2397-05.

[69] Bregman, "Uses of Social Media in Public Transportation."

may have limited internet access or there are disparities in skill levels to navigate the internet and use social media), investigation of use of these platforms to disseminate and collect information is worthwhile.[70] This said, data sharing and collection via web-based media must be approached tactfully by state agencies as to avoid potential risks – notably, incidental privacy violations.[71]

Little scholarly planning research into this topic has been published, though a growing field has emerged more broadly in the social sciences regarding topics of E-governance, or digital interventions in governing, and specifically, planning practice.[72] However, planners and computer scientists have come together to understand the large amounts of data available on social media. Scholars have developed social media text analysis techniques that quantitatively assess Twitter sentiments through machine learning algorithms.[73] Schweitzer (2014) examined social media discourse on Twitter concerning public transit.[74] In analyzing comments expressed by Twitter users about agency actions, results indicated more negative sentiments are typically expressed about transportation services more than other public services, and that these perceptions varied by degree to which transit agencies (the transportation service providers in question) responded to public comment.[75] In this case, evidence suggests agencies that take a proactive approach to facilitating civil, two-sided dialogue with the public regarding transportation encourage more positive sentiment expression in public forums. These findings were substantiated previously in examining bus rider satisfaction in Kuwait using survey-based methods, and considering face-to-face public interface platforms. [76]

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[70] Amy Gonzales, "The Contemporary US Digital Divide: From Initial Access to Technology Maintenance," *Information, Communication & Society* 19, no. 2 (February 1, 2016): 234–48, doi:10.1080/1369118X.2015.1050438; Dmitry Epstein, "The Analog History of the 'digital Divide.,'" *The Long History of New Media: Technology, Historiography and Contextualizing Newness*, 2011, 127–44; Dmitry Epstein, Mary Newhart, and Rebecca Vernon, "Not by Technology Alone: The 'analog' Aspects of Online Public Engagement in Policymaking," *Government Information Quarterly* 31, no. 2 (April 2014): 337–44, doi:10.1016/j.giq.2014.01.001.

[71] Jan Whittington et al., "Push, Pull, and Spill: A Transdisciplinary Case Study in Municipal Open Government," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, October 29, 2015), http://papers.ssrn.com/abstract=2636074.

[72] Maria Manta Conroy and Jennifer Evans-Cowley, "E-Participation in Planning: An Analysis of Cities Adopting on-Line Citizen Participation Tools," *Environment and Planning C: Government and Policy* 24, no. 3 (2006): 371–84, doi:10.1068/c1k; Jennifer Evans-Cowley and Justin Hollander, "The New Generation of Public Participation: Internet-Based Participation Tools," *Planning Practice & Research* 25, no. 3 (June 1, 2010): 397–408, doi:10.1080/02697459.2010.503432.

[73] Craig Collins, Samiul Hasan, and Satish V. Ukkusuri, "A Novel Transit Rider Satisfaction Metric: Rider Sentiments Measured from Online Social Media Data," *Journal of Public Transportation* 16, no. 2 (2013): 2; Eric Mai and Rob Hranac, "Twitter Interactions as a Data Source for Transportation Incidents," in *TRB 92nd Annual Meeting Compendium of Papers* (Transportation Research Board 92nd Annual Meeting, Washington, D.C., 2013), http://www.cs.uml.edu/~hachreka/files/related/13-1636.pdf; Minqing Hu and Bing Liu, "Mining Opinion Features in Customer Reviews," in *AAAI*, vol. 4, 2004, 755–60, http://www.aaai.org/Papers/AAAI/2004/AAAI04-119.pdf.

[74] Lisa Schweitzer, "Planning and Social Media: A Case Study of Public Transit and Stigma on Twitter," *Journal of the American Planning Association* 80, no. 3 (July 3, 2014): 218–38, doi:10.1080/01944363.2014.980439.

[75] Ibid.

[76] Collins, Hasan, and Ukkusuri, "A Novel Transit Rider Satisfaction Metric."

Building on this and other research[77], with the advent of the digital age and the rise of social media, investigation into the role of web-based platforms, including social networking sites, is warranted in research related to public engagement practices employed in urban planning.

## Case Study 2    West Hollywood, California

West Hollywood, California's self-labeled "Creative City", is pioneering innovative policymaking and complementary planning practice, where it comes to engaging with the public via social media. The city lists 25 web projects hosted across nine unsponsored[78] social media platforms as integral information outlets for public interface. These include Facebook pages informing the public on general city happenings ("WehoCity") and social services ("WehoCares"), and Twitter handles devoted to communicating with West Hollywood residents regarding city projects and news (@WehoCity), as well as reporting service requests (@WehoRequests), among others. Representing an early adopter city in terms of social media engagement – having created Twitter and Facebook accounts dating back to 2008 – this city of 35,000 is often praised by professional agencies, including, most recently, the National Association of Government Web Professionals (http://www.weho.org/city-hall/communications/digital-media), for successes in communicating with residents on the web.

West Hollywood's devotion to concentrating its web-based engagement to social media sites almost exclusively (the primary exception being the domain on which the city hosts their official website – www.weho.org) is unique from other municipalities, which typically rely on sponsored platforms that the city hosts for communications purposes. Also exceptional is the City's commitment to their Internet and New Media strategy and adoption of a "Social Media Policy" (included as Appendix B) to guide concerted operations and use of these open engagement platforms by all City agencies.[79] The Policy is enforced by City's Communications Division.

In presenting to the success of the city's approach to social media engagement both in a structural (in terms of thoughtful, concerted policymaking) and applied sense, Brett White, the City's Digital Media Coordinator, stresses the importance of "not be[ing] boring."[80] In this way, the City prides itself on knowing it's citizenry well enough to engage in a way that's friendly, relatable, visually-pleasing, sometimes silly, and, most importantly, effective in disseminating information, getting public feedback, and generally fostering a strong sense of civic pride. Staff is encouraged to use local and cater to City culture in designing communications – some of which, on first glance and taken out of context, are

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[77] Lynn Mandarano, Mahbubur Meenar, and Christopher Steins, "Building Social Capital in the Digital Age of Civic Engagement," *Journal of Planning Literature* 25, no. 2 (November 1, 2010): 123–35, doi:10.1177/0885412210394102.

[78] In this chapter, the term "unsponsored" is used to described public web platforms that host information at no cost to participating individuals/entities (as is the case with most social media sites such as Facebook or Twitter). In contrast, "sponsored" platforms describe those that individuals/entities pay for in order to share and/or collect information (for example, customized websites unique to a department or project).

[79] "City of West Hollywood Social Media Policy" (City of West Hollywood), accessed November 20, 2015, http://www.weho.org/home/showdocument?id=10054.

[80] Brett White, "How Not To Be Boring on Government Social Media," October 27, 2015, http://archivesocial.com/blog/brett-white-not-boring-government-social-media.

perceivably controversial. While this approach is admittedly risky, it is an integral part of the City's "bold" approach to public engagement.[81]

*Figure 11: The City of West Hollywood's Facebook promotion of their risqué water conservation campaign*



*Figure 12: West Hollywood's humorous tweets to alert followers to website failures (left) and fixes (right)*

## 3.3   Digital Communications in Oakland

To gain insight into the current state of digital communication infrastructure and web-based public engagement in Oakland, 218 Consultants conducted a survey of web projects currently hosted online and spoke with a member of the City's Communications Department responsible for tasks related to online engagement.

In discussing Oakland City-Oaklander[82] public interface structures, a staff representative from Oakland City's Communications Department reported that many of the City's major communications thrusts rely

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[81] Ibid.

[82] "Oaklander" is a label used to describe natives or residents of Oakland, CA.

on online outreach (see Table 5). A small team housed in the City Administrator's Office manages civic engagement and digital communications platforms for the City. Long-term tasks managed by this team include the Oakland Digital Front Door project – a redesign of the City's website aimed at improving user experience and constructing, defined, easy to navigate "pathways of communication" between City officials and site users.

Speaking to the future of digital communications for fostering public involvement in City projects, the interviewee argued that digital communications platforms are only effective when they serve as legitimate "engagement ports" where citizens provide both input and, most importantly, receive feedback on that input from fellow citizens and City officials. In this way, these platforms assist with holding the City accountable for serving and hearing the concerns of the citizenry, and facilitate productive, meaningful, and, most importantly, trusting relationships between the City and citizens. Thus, engaging through this practice can, the interviewee argued, result in a process of generating and providing iterative, constructive two-way feedback on city projects.

*Table 5: Summary of existing public engagement platforms and projects in Oakland*

| Name | Description | URL |
|------|-------------|-----|
| **City-Sponsored Platforms** | | |
| City of Oakland Website and Digital Front Door | Likening the City of Oakland's official website to the City's "Digital Front Door" – this website, redesigned as part of Code for America's Digital Front Door project, is the premier access point by which Oakland citizens can access information on the City. | http://www2.oaklandnet.com http://digifrodo.tumblr.com |
| Engage Oakland | A blog-like portal once monitored (as stated on the website) by staff of the Offices of former Mayor Jean Quan and the City Council, hosted by the third-party engagement tool platform, MindMixer. | http://oakland.mindmixer.com |
| Speak Up, Oakland! | An engagement portal sponsored by the Oakland City Clerk's office on the Granicus platform. This site allows users to comment on City projects; engage in discussion; create, share, and vote on citizen-generated ideas; take City-generated surveys; and access information on public Meetings. | https://oakland.granicusideas.com |
| Oakland Cityworks | Oakland Public Works' portal for submitting and monitoring the progress of service requests. Hosted internally. | http://gismaps.oaklandnet.com/srwebsite/ServiceType.aspx |
| SeeClickFix | An online and mobile tool that helps residents' report and track non-emergency problems, such as graffiti, illegal dumping or potholes. Monitored by Oakland Public Works. Hosted by SeeClickFix. | http://en.seeclickfix.com/oakland |

| Name | Description | URL |
| --- | --- | --- |
| **Unsponsored Platforms** | | |
| OpenOakland | Part of Code for America's volunteer Brigade program, OpenOakland is a nonprofit "civic innovation organization" that brings together volunteers to design and implement web-based projects that facilitate open communication between Oaklanders the City. See example project, Open Budget: Oakland: http://openbudgetoakland.org/2015-17-proposed-budget-flow.html | https://www.openoakland.org/projects |
| Neighborland | An open platform for users to suggest and discuss ideas regarding real or imagined city improvement projects. | https://neighborland.com/cities/oak |
| Next Door | A localized social networking platform for sharing pertinent information on happenings, events, etc. with those in close geographic proximity. | https://nextdoor.com/city/oakland--ca |
| Others: Twitter, Facebook, Instagram, etc. | Popular social media outlets for engaging in digital communications. The City of Oakland's social media presence includes a verified Twitter handle (@Oakland), an official Facebook page (City of Oakland – Local Government), and Instagram account (@visitOakland). | |

Referencing the difference in capabilities afforded by more traditional forms of public engagement – including meetings and open public records – versus digital communications, the interviewee made an important distinction between what constitutes "data" versus "records". Data, the staff member reported, should be easily flexible and facilitate agile use. Records, on the other hand, are typically quite static, difficult to gather or search, and siloed within the specific departments or sub-structures where they were initially generated. The interviewee stressed the importance of collecting and reporting data via a variety of media (digital, phone, as well as face-to-face platforms) for advancing not only the City's communications efforts, but more generally, for conducting effective interdepartmental operations. In fact, the respondent reported that centralizing the way City departments adopt and engage with new communications platforms – such that departmental "silos" might be overcome to achieve better internal and external communications – represents one of overarching mission of the Communications Department. Another guiding goal is to encourage digital communication use as a legitimate tool for informing city operations via appropriate up-front resource allocation and maintenance. The interviewee commented that Oakland's current efforts in online engagement through web-based platforms tend to be developed as "side projects," without capacity or City buy-in to maintain them with the end result being that social media is used mainly for posting announcements. This, the staff member stated, undermines the potential of web-based engagement to facilitate city-citizen relations, and thus, cooperation on participatory process.

The interviewee stressed the importance of social media specifically in allowing modern municipal agencies to "know where the community is", physically (or geographically) and conceptually in digital space. The staff member asserted that City engagement efforts implemented now and going forward should be targeting information and dialogue to platforms Oaklanders already use – specifically, Twitter, SeeClickFix, Facebook, and NextDoor. The respondent suggested that measuring the success of outreach efforts on social media should be gauged by "transactional" measures – or actions that require some interaction and internalization of information beyond, such as Retweeting – rather than "superficial" efforts, or "stagnant" actions, such as liking posts or following certain accounts.

Ultimately, when asked to comment on the potential for passively collecting data from social media to gather valuable information on Oaklanders needs and City goings-on, the interview identified value in this emerging practice. This interviewee also reported that discussions are underway internally to contract with an outside public relations technology service to conduct such analysis to track conversations among the public, assess impact of public outreach projects, and experiment with the best ways to connect users and City officials via engagement channels.

## 3.4   Methodology

### 3.4.1   Overview of Social Media Analyses

Members of the 218 Consultants team developed tools for pulling data from the web-based platforms, Twitter and SeeClickFix, for use in investigating public sentiment concerning transportation in Oakland. These sites were chosen as they include large, public datasets that can be easily accessed for research purposes. The analysis approach by 218 Consultants – which examines social media discourse as a means to gauge public opinions and interpret dialogue between citizens and government agencies – is emerging in planning academia, as the public has come to expect municipal agencies adopt a digital presence. In this contemporary era of information sharing, digital communications platforms are emerging as important spaces where interactions between service providers and citizens take place.[83] Moreover, these forums represent open channels through which the public expects oversight agencies demonstrate commitments to transparency and accountability in decision-making and operations processes via use of active and clear digital communications.

To better understand these phenomena in Oakland, 218 Consultants are using social media scraping[84] and text analysis techniques analogous to those employed by Schweitzer (2014) and others.[85] The tools developed can be used to quantify public sentiment concerning transportation services in Oakland, as well as characterize the discussion landscape that encapsulates web-based communications between the City and Oaklanders where they manifest on Twitter.com and SeeClickFix.com. These methods also could be

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[83] Schweitzer, "Planning and Social Media."

[84] "Scraping" here is used to describe the process of collecting information from a website by accessing the publicly available underlying data (usually through an application programming interface, or API, as in this case), as opposed to manually visiting the website and copying information. .

[85] Schweitzer, "Planning and Social Media"; Collins, Hasan, and Ukkusuri, "A Novel Transit Rider Satisfaction Metric"; Mai and Hranac, "Twitter Interactions as a Data Source for Transportation Incidents"; Hu and Liu, "Mining Opinion Features in Customer Reviews."

employed more broadly to other city services and processes. The conceptual research design guiding development and use of these analysis methods is first described below and 218 Consultants results and findings are discussed.

### 3.4.2  Twitter Scraping Project

218 Consultants divided the Twitter scraping project into two primary thrusts, including:

1. A **sentiment analysis** in which the team has collected 5,019 Tweets related to transportation in Oakland and used text mining and machine learning to create a program that classifies positive and negative Tweets, and assigns sentiment scores to Tweets based on language used. A sentiment score greater than zero indicated a Tweet expressed positive sentiment; conversely, a sentiment score less than zero indicated a Tweet expressed a negative sentiment. This tool has allowed researchers to examine these perceptions according to different topic characterizations, and for Oakland specifically can be used to discern how Oaklanders generally perceive local transportation services (for example, whether transportation satisfaction trends vary based on linked commentary to a particular Oakland neighborhood, transportation provider, or a political figure among other potential linkages).

2. An **impact analysis** in which outgoing Tweets from city agencies, as well as Tweets concerning transportation in Oakland were measured according to "impact" (a proxy for level of activity or engagement in digital dialogue) as this was quantified using incidence of Retweets and favorites.

218 Consultants aimed to capture a snapshot of Tweets that were both located in Oakland and about transportation-related issues. Tweets were gathered using the Twitter API[86], which provides a list of recent Tweets based on search parameters. To gather Tweets about Oakland, consultants developed a list of Oakland-related search terms in collaboration with city staff, which also included a search for geotagged Tweets within or very close to Oakland city boundaries. To identify Tweets about transportation, consultants with city staff also developed a list of transportation-related search terms. Both lists of search terms are shown below in Table 6. Each Oakland search term was paired with all of the transportation search terms to develop a comprehensive list of queries. Each query was run regularly over a 7-day period to collect a complete week of Tweets about transportation in Oakland.

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[86] An API, or application programming interface, is a software application that facilitates interactions between a web user and a website.

*Table 6: Search terms used in the Twitter scraping process*

| Oakland Search Terms | Transportation Search Terms |
|---|---|
| **[latitude and longitude of the approximate center of Oakland with a 5 mile radius]** | Bus |
| **Oakland** | Train |
| **Raiders** | AC Transit |
| **Golden State Warriors** | BART |
| **Libby Schaff OR Mayor Schaff** | Traffic |
| **Temescal** | Sidewalk |
| **Mills College** | Bicycle |
| **Jack London Square** | Bike |
| **Fruitvale** | Riding |
| **Oaklandish** | Walking |
| **Rockridge** | Driving |
| **Lake Merritt** | Uber |
| **Odotcocoliseum** | Lyft |
| **San Leandro** | Caltrain |
| **19th St Bart** | Streets |
| **12th St Bart** | Congestion |
| **West Oakland Bart** | |
| **Macarthur Bart** | |
| **Coliseum Bart** | |

The list of search terms used is not comprehensive, and the exclusion of any one Oakland location or transportation topic is not purposeful, but simply a practicality. 218 consultants selected search terms that would be associated with the largest volume of relevant Tweets to provide a robust example. Some terms, such as Ferry, were not very popular on Twitter, whereas others, such as Laurel District, were not specific enough and returned too many Tweets not related to Oakland. In another example, Coliseum is too general a term to be useful in this context, but the Oakland Coliseum's Twitter username, Odotcocoliseum, was included in the search terms. Despite this attempt to include the most important search terms, some of the search terms in the table above returned few Tweets during the collection period. The methodology presented here can and should be expanded to cover additional search terms as part of a comprehensive assessment of online interactions related to transportation, as described in the recommendations at the end of this chapter.

The database of Tweets that resulted from this data collection process contained 5,019 unique Tweets. Subsets of this database were used to perform both a sentiment analysis and an impact analysis. A large amount of Tweets related to transportation in Oakland were traffic alerts or headlines – often automatically Retweeted by news sources and other organizational users, quickly inflating the volume of these Tweets. These types of Tweets are well suited for an impact analysis, but do not have a place in a sentiment analysis as they do not represent individuals sharing a feeling or experience, but organizations

sharing facts. Thus, 218 Consultants removed traffic and headline Tweets from the database used for sentiment analysis, along with Retweets and automatically generated Tweets (check-ins from Foursquare, a mobile application that allows users to share their location with friends, for example). After this filtering process, two search terms did not have any remaining sentiment Tweets: "Mills College", and "Libby Schaff" or "Mayor Schaff".

The sentiment analysis tool was built using a programming language called Python. Design methodology was primarily drawn from that used by Schweitzer (2014).[87] Steps for generating the tool and collecting analysis outputs are depicted in Figure 13 below.
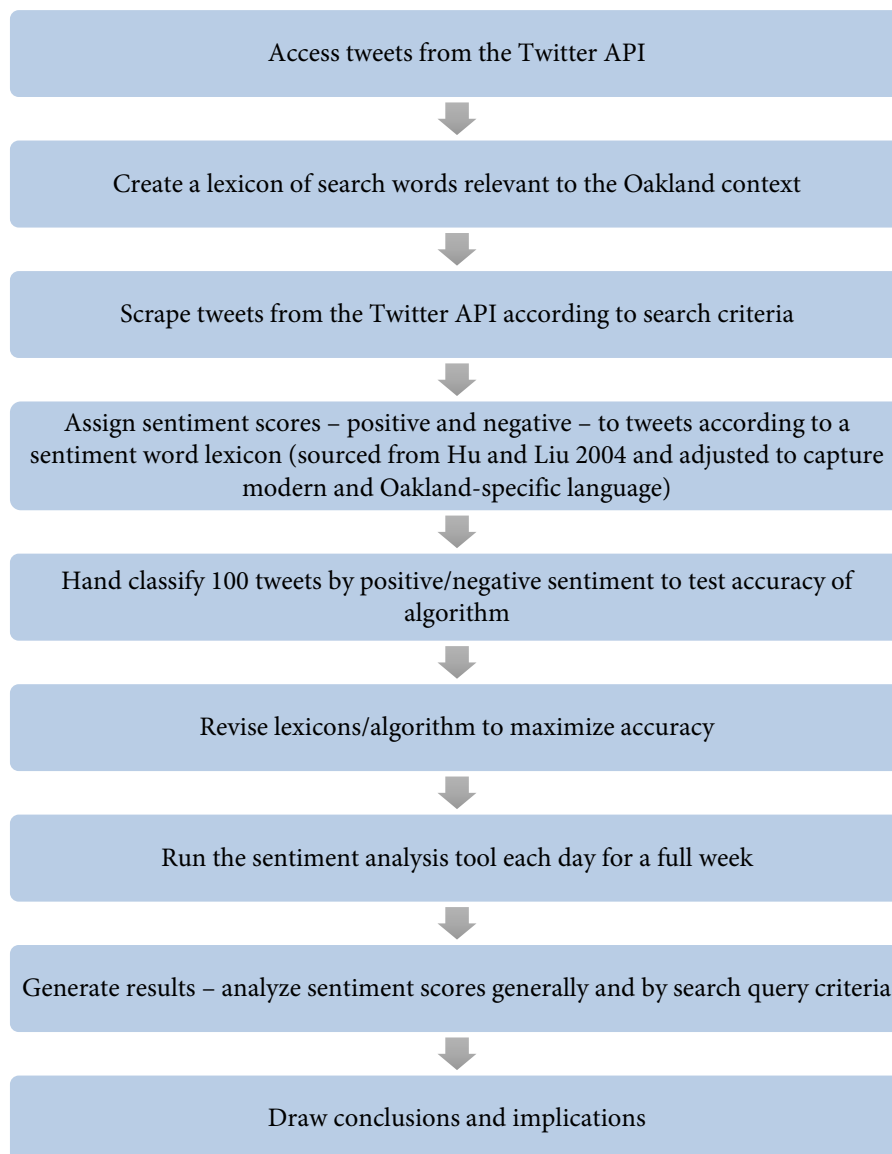


*Figure 13: Flow diagram describing design and implementation methods for the Twitter analysis*

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[87] Schweitzer, "Planning and Social Media."

Impact analysis data was also derived from scraped Tweets, and analyzed using the Python programming language to examine dialogue activity according to, primarily, Retweet and favorite counts. Researchers subsequently examined the content of high- versus low-impact Tweets to generate conclusions as discussed below regarding what types of content encourage or discourage social media dialogue around transportation in Oakland.

### 3.4.3  SeeClickFix Analysis

The 218 Consultants used service requests submitted through SeeClickFix.com for collecting data primarily on *where*, and to some degree, *how* Oaklanders comment on transportation infrastructure problems. As the language on SeeClickFix is typically quite directed to point city officials to specific problems in need of fixing, sentiment is not a good measure for these data. Instead, the methodology for this analysis was primarily in mapping complaints and attaching information related to complaint content to create an interactive visualization of transportation problem areas in Oakland as reported by SeeClickFix users. Steps for generating the visualization and collecting analysis outputs are depicted below in the following schematic (see Figure 14).
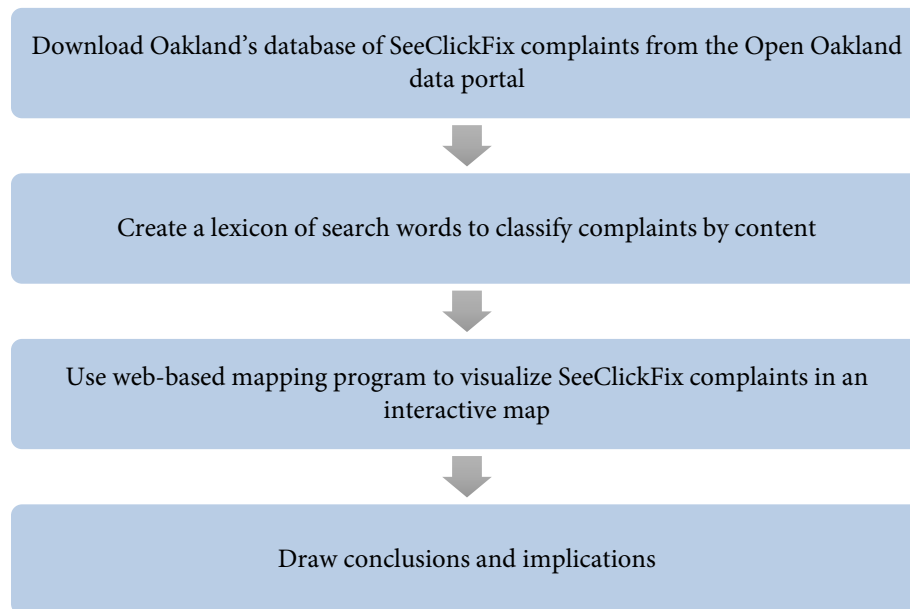


*Figure 14: Flow diagram describing design and implementation methods for the SeeClickFix analysis*

## 3.5  Results and Findings

### 3.5.1  Twitter Sentiment Analysis

The initial analysis of the collected Tweets involved a manual inspection to check the types of topics, information, and feelings expressed. 218 Consultants recorded some initial, qualitative observations that are instructive in understanding how Twitter users understand and describe the transportation system and the built environment. For example, BART had a very strong presence in the Tweets collected. It was common for users to announce their presence on BART as they were on their way to events or specific locations. In this extreme example, a user claims that posting from BART is "obligatory":

extremely obligatory @ Under San Francicso Bay – In The BART Tube
– @DAGHE, October 23, 2015

When describing their experience on BART, most people used the term "BART", rather than using a generic description such as "the train" or naming the line that they were taking to their destination. Further, BART stations were mentioned not only as transit nodes, but also as landmarks in their own right. In each of the following two Tweets, MacArthur BART station is not a node for entering or exiting the BART system, but rather a location of an event or an experience:

Repost From IndyBay: Tech Commute Shut Down at MacArthur BART!
– @KAnstantRising, October 27, 2015

Very Beautiful Evening in Oakland! @ MacArthur (BART station)
– @PatriciaDenni2o, October 29, 2015

In total, 278 BART-related sentiment analysis Tweets were collected. In contrast, only 12 AC Transit Tweets specific to the search term "AC Transit" were available for collecting to include in the sentiment analysis. Observations indicated that AC Transit riders were more likely to mention being "on the bus" or call out specific bus lines. In the following "missed connection" Tweet, "AC Transit" is not mentioned, and the user describes being on "the 51A bus", an awkward construction that exemplifies the lack of a singular lexicon for describing AC Transit services:

today in the 51A bus from Fruitvale – m4w (alameda): We exchanged looks many times, yet I couldn't app…
– @SFM4W, October 31, 2015

Because of the linguistic variation in the ways people mention riding the bus through social media, this analysis likely did not capture some Tweets made by bus riders if they did not mention AC Transit by name or include the word "bus" in their Tweet. The larger implication of this trend is that branding matters on social media. There is a consistent set of unique terms that riders (or the subset of riders who use Twitter) use to talk about BART, and this may spark more engagement around BART as a common topic amongst social media users.

The initial output of the sentiment algorithm provided a sentiment score indicating the sum of the positive and/or negative words in each Tweet. As the number of positive or negative words in a Tweet does not measure the relative sentiment of Tweets, the dataset was simplified to indicate only whether a Tweet was positive, negative, or neutral. The Tweets also were categorized into subjects using keywords from the text. First, five overarching categories were analyzed, as specified in Table 7 (note that Tweets that mentioned more than one of the subjects were included in each, so the sum of Tweets in these subjects will double count some Tweets). The keywords identified are more comprehensive than the search terms listed above. These keywords were developed after the data collection process based on the content of the Tweets collected. Some of the new keywords could be fed into the search term list in a future iteration to collect a more comprehensive set of Tweets.

*Table 7: Tweet keywords by topic*

| Active Transportation Modes | Automobiles and Driving | Locations | Professional Sports Events | Transit |
|---|---|---|---|---|
| Bicycle | Accident | Airport | Raiders | AC Transit |
| Bike | Congestion | Coliseum | Warriors | Amtrak |
| Sidewalk | Drivers | Fruitvale | | BART |
| Walk | Driving | Jack London | | Bus |
| Walking | Parking | Lake Merritt | | Caltrain |
| | Potholes | MacArthur | | Capitol Corridor |
| | Streets | Mills | | Ferry/ferries |
| | Traffic | Rockridge | | Lyft |
| | | San Leandro | | Rideshare |
| | | SFO | | Train |
| | | Temescal | | Transportation |
| | | West Oakland | | Uber |

Tweets related to active transportation modes and professional sports events tended to be more positive than average, while Tweets about automobiles or focusing on specific locations (neighborhoods, transit stations, etc.) were, on average, more negative than other Tweets. Tweets about transit were mixed, with an average number of positive and negative Tweets. The summary table (Table 8) below presents the details of these results, with the percent of Tweets in each subject that were positive or negative. The remaining Tweets were neutral according to the sentiment analysis – meaning they contained no words from the sentiment lexicon, or had negative and positive words that resulted in a sum of zero.

*Table 8: Summary of sentiment analysis results by search topic*

| Topic | Number of Tweets | Percent Positive | Percent Negative |
|---|---|---|---|
| Active transportation modes | 337 | 30 | 16 |
| Automobiles and driving | 369 | 26 | 26 |
| Location | 321 | 21 | 20 |
| Professional sports events | 140 | 32 | 15 |
| Transit | 859 | 28 | 19 |

In the next stage of the analysis, 218 Consultants categorized the Tweets using each of the key terms listed in Table 7. From this, topics that did not follow the patterns of the general, overarching topics were identified to provide a more detailed analysis.

### 3.5.1.1   Transit

Most transit-related topics had a positive/negative sentiment split similar to the average. However, Tweets about the ridesharing services Uber and Lyft, which 218 Consultants included in the transit category, tended to have a higher percentage of positive sentiment Tweets – averaging 40% and 55% positive

respectively. Rideshare clearly has features that distinguish it from traditional forms of transit – increased privacy, comfort, and convenience – which might make users more likely to post positively about it, but Uber and Lyft also benefit from the branding effect discussed above – these services have a distinct identity, and, bolstered by their status as an exciting emergent technology, the social media presence of these companies is strong. However, it is important to note that the data collection took place during the announcement of an affordable housing fee to be paid by Uber to Oakland in connection with the company's new headquarters.[88] Many Tweets related to Uber referenced this announcement, and while there was a mix of positive and negative sentiments, the majority were positive, affecting the averages.

### 3.5.1.2   Location

Location-related Tweets fell into three categories, which was influenced by the search terms as not all neighborhoods and locations were included as noted above: Fruitvale and all Tweets with the word "airport" had a very high percentage of negative Tweets (45% and 38%) and low percentages of positive Tweets. San Leandro, West Oakland, and Lake Merritt all had at least 30% positive Tweets and under 20% negative Tweets. MacArthur, the Coliseum, Rockridge, Temescal and SFO each had 70% or more neutral Tweets. It is first worth noting again that the locations for which 218 Consultants were able to gather a significant number of Tweets for the sentiment analysis were BART stations, further evidencing the role of BART stations as major Oakland landmarks. A majority of locations were associated with mainly neutral Tweets also shows the prevalence of announcing one's location on Twitter without assigning a negative or positive feeling, possibly for the purpose of meeting up with friends nearby, or simply as a way to connect with online friends and followers.

### 3.5.1.3   Automobiles and Driving

In the automobile category, "parking" and "driving" had higher percentages of positive Tweets than other car-related Tweets, whereas "traffic", "streets", and "accident" had more negative Tweets as would be expected. It is, however, surprising that a controversial topic like parking would have so many positive Tweets. A further examination of the content showed that Tweets related to parking often identified unexpected locations to find ample parking, or were from people excited to find a parking space in a busy location.

> Last week I was at Rockridge BART around 8:00 A.M. and saw lots of open parking spaces on the eastern lot…
>     – @OaklandReddit, October 28, 2015

### 3.5.1.4   Active Transportation

Considering active transportation, Tweets related to walking tended to be more positive, with over 30% positive, but Tweets related to biking and sidewalks were more negative – with 20% to 50% negative scores. Consultants observed that the reason for this difference is because the latter Tweets tended to be complaints about infrastructure like bike lanes and sidewalks.

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[88] Roland Li, "Uber to Pay Oakland around $1 Million for Affordable Housing," *San Francisco Business Times*, October 27, 2015, http://www.bizjournals.com/sanfrancisco/blog/real-estate/2015/10/uber-oakland-affordable-housing-fee-gentrification.html.

### 3.5.1.5   Professional Sports Events

Tweets about sports were limited to the Oakland Raiders and Warriors, as 218 Consultants were unable to effectively search the Twitter database for the A's or the Athletics due to the common nature of those phrases in language attached to other meanings (e.g. any "athletic" competition) – only four Tweets containing these words were collected using other search terms. Tweets about sports teams were collected because many fans use social media while traveling to or from games; the subject of the Tweets tended to be about the team or the game, and thus reflect feelings toward the team's performance or general excitement about cheering on local teams, rather than about transportation. However, these Tweets are still instructive as they are times when many people are interacting with the transportation system and on social media. This type of focal point for social media posts should be an indicator to the new DOT of where a new social media presence could gain attention and find new people to interact with. In this case, Tweeting before and during professional sports events, for example by asking questions like how people are getting to and from the game, could greatly increase the visibility of the DOT and start conversations about transportation in Oakland.

### 3.5.2   Twitter Impact Analysis

In addition to studying the sentiments expressed by Twitter users, 218 Consultants have also examined the reach of Tweets by performing an impact analysis. This analysis focused on the number of Retweets and favorites a Tweet received. While a favorite is more of a passive acknowledgement of a Tweet, a Retweet, which requires a user manually add the Tweet to their own "feed" or Tweet record, constitutes a much more interactive response. However, these metrics do not fully represent how people respond to Tweets; neither of these actions are necessarily indicative of a positive sentiment or agreement because a Retweet may not always be about sharing the sentiment of a Tweet, it may in fact be done to provide a counter argument or complaint about the topic. A favorite is more likely to be a positive response as it does not involve any other information shared, but it also means that this interaction is hard to interpret. Further, it is likely that a small number of people who see a Tweet will take one of these actions because the number of favorites that a Tweet receives is usually much smaller than the number of people who are subscribed to updates from that user. The City of Oakland's official Twitter account has around 10,700 followers, but their Tweets rarely get more than 15 total Retweets and favorites. A Tweet without many Retweets and favorites does not necessarily have a short reach or low impact, but a Tweet with many actions taken in response has certainly achieved ample reach. This research examined what might make other Twitter users actively respond to a Tweet by Retweeting and/or favoriting.

First, consultants examined the average number of Retweets and favorites by search term categories (see Table 9 and Table 10, respectively). For all Tweets collected, the average number of Retweets was 1.4, and the average number of favorites was 0.3. These numbers are low because many Tweets receive few or no Retweets and favorites. However, some specific topics had higher numbers of interactions, as shown in the two tables below. Tweets related to sports teams, driving, and a few locations tended to have more interactions than most Tweets. Tweets about walking and biking have both more Retweets and more favorites than average.

*Table 9: Summary of average number of Retweets by Tweet subject*

| Subject | Average Retweets |
| --- | --- |
| **Walk** | 4.9 |
| **Raiders** | 2.7 |
| **Bike** | 2.0 |
| **Cars** | 1.7 |
| **Traffic** | 1.6 |

*Table 10: Summary of average number of Favorites by Tweet subject*

| Subject | Average Favorites |
| --- | --- |
| **West Oakland** | 0.8 |
| **Warriors** | 0.6 |
| **Walk** | 0.6 |
| **Jack London Square** | 0.5 |
| **Ferry** | 0.5 |
| **Bike** | 0.4 |
| **BART** | 0.4 |
| **Raiders** | 0.4 |
| **Coliseum** | 0.3 |
| **Transit** | 0.3 |
| **Cars** | 0.3 |

Another trend observed was individuals who were prolific Twitter Users who Tweet very often, usually more than once a day. Prolific Twitter Users who are interested in the same issues often follow and Retweet each other regularly as well. They create a sub-network on the larger platform of Twitter, such that other users who follow at least one of them can view and participate in this larger conversation. In Oakland, 218 Consultants observed prolific Twitter Users on two main subjects: local sports teams, and "urbanist" issues. Because of the volume of Tweets these users produce, and perhaps because of their focus on particular topics, these users have amassed a large amount of followers and average a higher number of Retweets. For example, most users with the highest average Retweet count form the Tweets collected for the impact analysis mention a professional sports team (e.g. Warriors, Raiders, or Giants) in their user description. Some Tweets collected related to transportation issues were part of larger conversations held between self-described urbanists over Twitter. These Twitter users call themselves urbanists in their user descriptions, and are actively trying to start conversations about city planning, housing, or transportation issues via social media. These users are prolific Twitter users who often have successfully gathered large

followings. The DOT could use conversations with either of these types of prolific Twitter users as another method for gaining recognitions on Twitter.

In addition to this content analysis, 218 Consultants performed a geographic analysis by mapping Tweets with geocoded locations. A small percentage of Tweets collected included geographic information for the location of the Twitter User when the Tweet was submitted. However, many Twitter users do not use this feature, so to get a more complete picture of where Tweets were taking place, location data were added to Tweets that mentioned specific locales. The result of this is a map that provides a picture of what locations people Tweet about, if not exactly where they are Tweeting from. The map shown below is a visualization of the volume of Tweets by location. An interactive version of this map, which also includes an option to view sentiment analysis Tweets by sentiment score, is available at http://bit.ly/1SQgqEF (see static image in Figure 15).
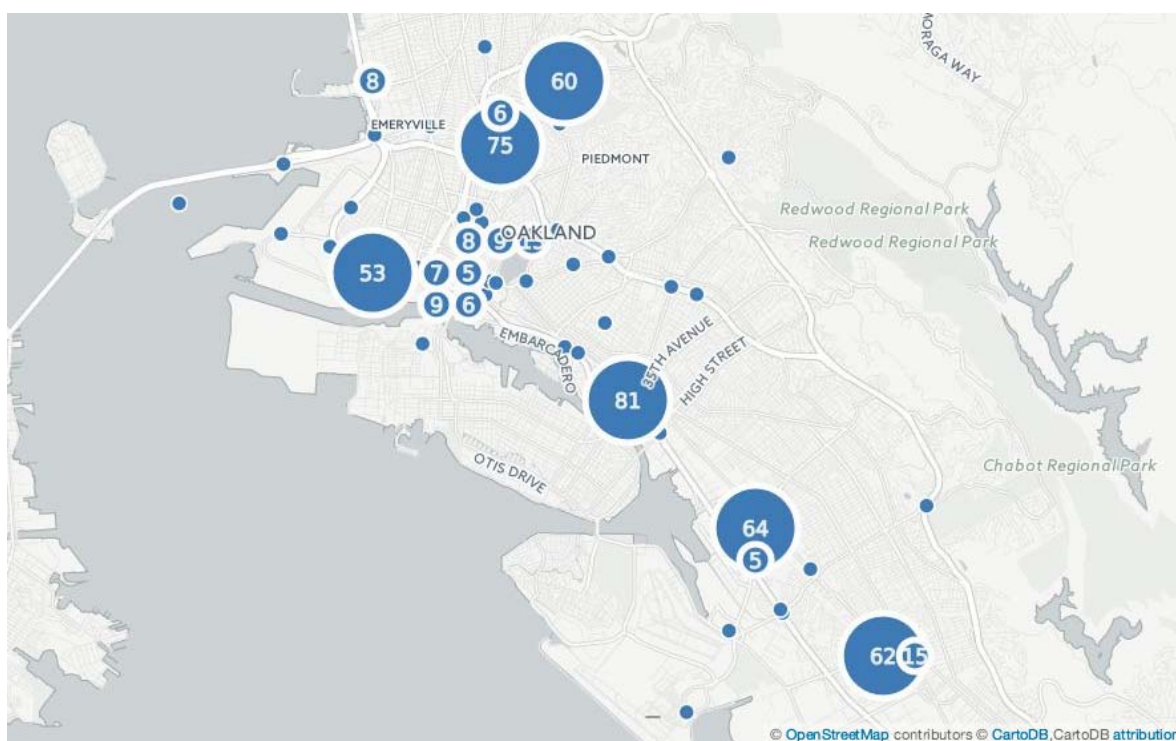


*Figure 15: Static image from a webmap created from analyzed Tweets. Interactive version available online at http://bit.ly/ISQgqEF*

The Tweet map shows that there are a lot of Tweets about or near BART stations, and also that there are a lot of Tweets taking place downtown. The lower density of Tweets in other areas is partially indicative of a lower transportation-related Tweet volume, but also is likely affected by the relatively few Tweets about AC transit as noted above, and that there are fewer landmarks to identify in the eastern areas of Oakland. This map also clearly shows that there are easy ways of talking about and identifying the central, most accessible neighborhoods, but there is either little conversation happening in the other areas, or it is difficult to monitor using common search terms. Mapping Tweets by sentiment (not shown) did not result in any discernable pattern of positive or negative Tweets--good and bad experiences related to transportation happen all over Oakland.

It is traditionally thought that people use online feedback outlets, and other forms of public engagement, for mainly complaints, and thus these outlets are expected to paint an overly negative picture.[89] We found, however, that although there are certainly instances of Twitter being used for complaints, as with Tweets about the quality of bike lanes and sidewalks, people use Twitter to express a variety of sentiments. From celebrating finding the perfect parking space, to cheering on their favorite team, to simply enjoying the view, active users on Twitter use it as an outlet to express themselves in a public and interactive form.

### 3.5.3  SeeClickFix Analysis

SeeClickFix is also an example of the City engaging in social media. SeeClickFix is a social media site – designed for easy mobile use, with the ability to comment on, share, and like other posts, and it will soon be adding a feature where you can "tag" other users much like Facebook or Twitter. However, a quick look at the issues posted around Oakland shows that the Public Works department communicates with users of SeeClickFix much like they would with traditional call center or issue-reporting systems – with formulaic responses, referring to internal service request numbers without providing detail on how or when an issue will be addressed. For most issues related to transportation – potholes are very common, as are safety issues like the one shown in the image below (Figure 16) – addressing the problem is not as simple as sending out a clean-up crew. It is not hard to find cases where an issue is marked as "resolved" by the department, while users claim the issue has not actually been fixed on the ground. Because the process is not very transparent, and there do not seem to be many pathways for staff members to provide more detail on the issues directly to SeeClickFix users, users get easily frustrated as evidenced by user comments. In particular, the tone taken by users of the site shows that they are not just losing confidence in the city's ability to respond to their needs, but also feeling ignored or as if the city is brushing them off by taking such a detached tone and not responding to follow-up comments. What may have originally been an efficient way to respond consistently to service requests while managing them internally has not translated well to the social media framework.

To perform a quantitative analysis of how Oaklanders use SeeClickFix to communicate with the city, consultants developed a database of SeeClickFix requests from the OakData open data portal. The data includes requests made during most recent complete month for which request data is available, September 2015, a total of almost 2,800 requests. These requests were mapped by topic (shown below) and also aggregated to show density of requests by location (not shown). Both maps are available in an interactive format at http://bit.ly/1HRbpv9.

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[89] Schweitzer, "Planning and Social Media."

*Figure 16: Example SeeClickFix post, including City–citizen exchange*
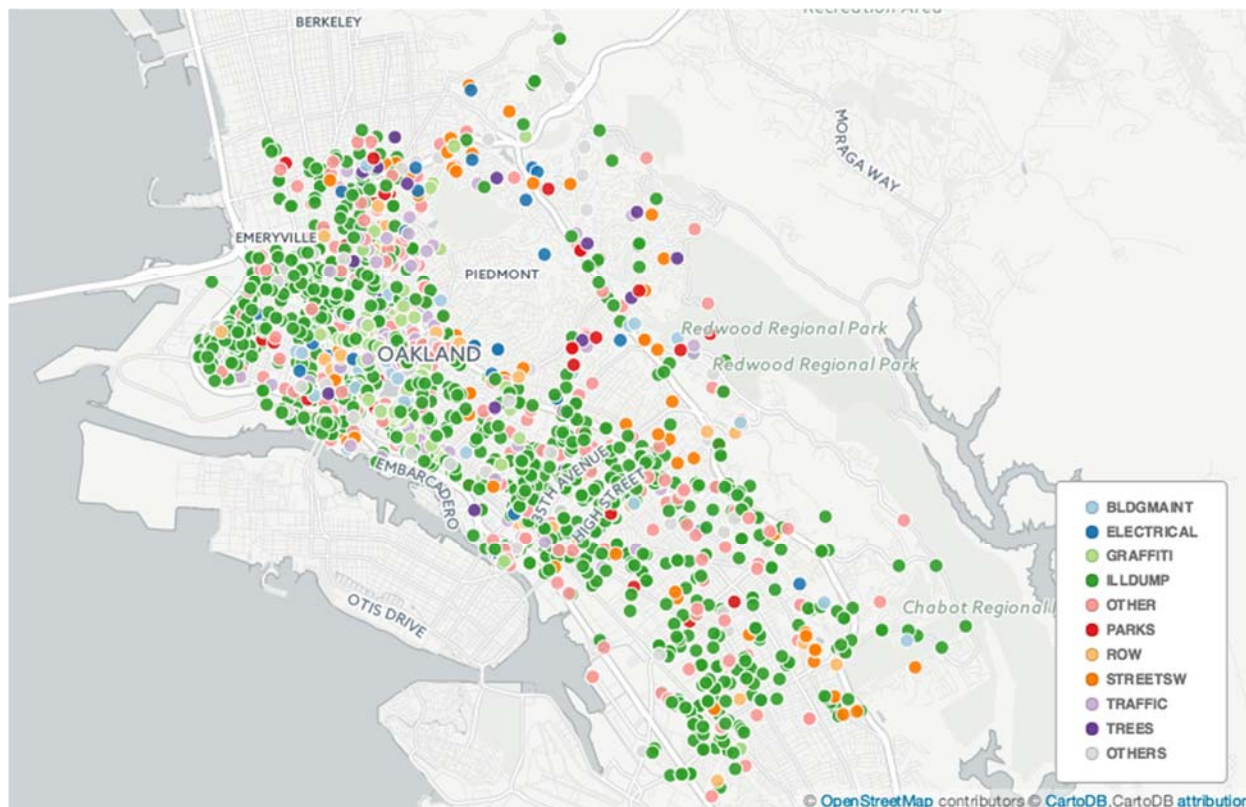
*Figure 17: Static image from a webmap created from analyzed SeeClickFix requests. Interactive version available online at*
*http://bit.ly/1HRbpv9*

This map includes a full month of data, rather than the single week of data collected for the Twitter analysis and thus there is a larger volume of individual data points. However, this larger volume does not by itself account for the broad geographic distribution of requests spread throughout East Oakland, North Oakland and the hills. This is evidence that people all over Oakland are actively engaging through an internet-based, social media style tool.

The broad popularity of SeeClickFix has implications for many departments in the City, as shown by the variety of topics in the map above. In the area of transportation, both the qualitative and map-based analyses of SeeClickFix show that many Oakland residents are interested in having conversations about transportation infrastructure through tools like SeeClickFix, and care about what happens with transportation-related problems in their neighborhood and city. The city should take advantage of this interest by engaging this community more actively. This platform is designed for two-way direct dialogue, and although it would take more staff resources, the tools are already in place and thus it would not be such a large change to do so. By engaging this existing community in a more satisfactory way, this action would multiply the DOT's presence on social media as SeeClickFix users share their experiences on other platforms.

## 3.6   Recommendations and Conclusions

A coordinated, consistent, and open public interface will be an essential tool for branding the DOT, disseminating information about future projects, and for gathering public input during planning and implementation. An important part of this public interface, which is in danger of not receiving an adequate amount of attention, is the DOT's digital interface. In general, we recommend that as the department forms, thought be put into the DOT's presence on social media and use of Internet tools as an integrated but distinct aspect of citizen engagement. These pathways should supplement and be coordinated with extant, traditional engagement techniques, rather than replacing or duplicating them. Specifically, 218 Consultants recommends the DOT take the following near-term actions to begin the iterative process of developing this interface.

- **Study and understand "where Oaklanders are" digitally through passive data collection and analysis of existing tools.** Developing any public engagement strategy requires knowledge of how people engage, what their constraints are as well as challenges for participation (such as time and level of interest) and some existing outreach structures in place. This information should also be collected and analyzed to develop digital outreach methods. 218 Consultants recommend developing a methodology for gathering information about how Oaklanders use the digital tools available to them, including social media. This methodology should also be sustained for monitoring success of public engagement program. 218 Consultants have developed a sample methodology through the Twitter and SeeClickFix analyses presented above. These methods are effective for defining and describing extant engagement points and civic dialogue on the web, and thereby, identifying areas for targeting future outreach.

- **Develop a public engagement plan that incorporates digital approaches.** Effective public engagement projects are those that are self-reinforcing, in which the City can design and implement projects with members of the public as actively participating stakeholders throughout. This requires the City diligently disseminate information to the public at each state of project planning and implementation, and partake in meaningful dialogue to gather feedback. Importantly, also would add that the city should tell residents how they are using the input and how things are changing as a result. In order to create a cohesive public interface, and to identify how to use digital engagement methods, 218 Consultants recommend developing a public engagement plan. Informed by the results of recommendation 1, this plan should identify when public engagement happens during planning and implementation of projects, and identify the methods and frameworks for engagement to be used. This plan should also identify methods for tracking the success of public engagement efforts, in coordination with DOT or citywide performance management staff. The analysis in recommendation 1 should provide an initial methodology for tracking engagement online.

  This engagement plan should also address the equity impacts of using Internet-based outreach methods. Although social media sites and other web-based platforms hold great potential for supporting outreach and dialogue, they may not be accessible to all Oaklanders. For example, 218 Consultants' Twitter and SeeClickFix analysis has shown that there is a difference in geographic

distribution of users between the two. The public engagement plan should note characteristics of tools that reach more people, and identify how the DOT's digital engagement efforts will strive to reach the most people. Further, requiring access to the Internet may create additional barriers to participation for some groups of people, who are likely already not reached or served equally. Very recent research on this topic found that while most people in a survey of low-income US residents had some access to the internet, many had only inconsistent access due to an inability to pay for service or repairs, or because they relied on a public Internet source.[90] An engagement plan should address how this applies to Oakland's disadvantaged populations, and how the City will reach population that may not be reached via the digital means.

An engagement plan also provides an opportunity to address the uses of social media in resiliency planning. Social media is an immediate form of communication that many people use very regularly. With careful monitoring and preparedness, the DOT can use these ready-made networks to identify accidents and disasters as they happen, and disseminate information during emergencies when people cannot be reached by traditional means, or when many people need to be reached at once. In this way, the public engagement plan can play an important role in disaster preparedness and resiliency planning.

- **Establish a presence on social media and develop a social media policy.** Social media sites represent apt spaces for Oakland's emerging DOT to engage with Oaklanders. As much of Oakland's population might potentially interact with municipal institutions as part of habitual social media use, employing digital communications via social networking sites in public outreach strategies is an opportune approach for meeting the community on familiar territory, as recommended by the interviewee from the city's communications department. In this way, social media outreach can facilitate trust building between the City and citizens, and encourage productive discussion of extant or planned City projects.

  The social media analyses of Twitter and SeeClickFix conducted by 218 Consultants have shown that there are existing tools, communities, and ways of talking about transportation in Oakland that the new DOT could harness with some ease to immediately increase the online presence of the department and set a foundation for new pathways of engagement online. 218 Consultants have only explored two of the many social media, internet-based communities where Oaklanders may be interacting and sharing their experiences. In addition to Twitter and SeeClickFix, consultants recommend that the DOT explore other sites, including Facebook, Instagram and NextDoor.

  To help facilitate this, 218 Consultants also recommend the development of a social media policy, which contains guidelines to set a consistent tone and procedure for posting to social media (see the City of West Hollywood's Social Media Policy in Appendix B). If these guidelines can set clear boundaries and rules, and create a streamlined process for generating and approving content, multiple staff members could participate in sharing their work in a human voice, without having

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[90] Amy Gonzales, "The Contemporary US Digital Divide: From Initial Access to Technology Maintenance," *Information, Communication & Society* 19, no. 2 (February 2016): 234–48, doi:10.1080/1369118X.2015.1050438.

to figure out what is appropriate or navigate the often time-consuming process of posting information publicly.

▪ **Create a work plan for developing and maintaining new web-based tools for directed public feedback.** Public engagement is most effective when it addresses a current project or program at a critical point, where a shift in process can actually happen. This is in contrast to open, idea sharing engagement, such as on Twitter, that is a useful way to start conversations, but results in a significant number of ideas that simply cannot be implemented. Ultimately, public engagement must be planned in coordination with project or program development so that input may be fielded in a timely and directed fashion.

Accordingly, increased attention ought to be given to developing web-based engagement platforms that can be effectively implemented for direct two-way engagement between the city and residents. As stated by the communications staff interviewee, without resources and staff clearly tasked with developing and maintaining digital tools, these efforts often are afterthoughts or "side projects" that, while well intentioned, are not consistently used or maintained by the city, and thus, are not used by citizens. In developing future platforms, the DOT should ensure that resources are reserved for maintenance of the tool and staff are trained to curate the tool. In this aim, the City should consider consolidating digital communications efforts within and across departments to ensure permanence and consistence, and so that these efforts emerge as forethoughts in public engagement. While this might require targeting more city resources to social media engagement, it is likely a more efficient and effective approach – cost-wise and impact-wise – to achieving successful web-based public outreach than those piecemeal strategies identified above in the table of current and past tools developed by the City (Table 5), which result in underutilized platforms. To this end, 218 Consultants recommend using the findings of the Internal Coordination chapter of this report to develop a work plan along with staff in the City communications department, along with other relevant departments, for developing, maintaining, and training staff for future web-based platforms that facilitate discourse and feedback.

Ultimately, to "know where the community is" the City of Oakland, among all modern municipalities, should be engaging the public in both physical and virtual space. By embracing this approach, Oakland's DOT can reach larger numbers of its citizenry in customized, interactive ways. This increases transparency and accountability by maintaining an acute awareness of public perceptions and needs, helping the DOT to provide transportation services that are more reflective of these perceptions and needs.

# 4 Project Prioritization

## 4.1 Problem Statement

One of the main challenges that most city departments face is delivering a multiplicity of public services while constantly improving the quantity and quality of those with limited financial resources. The Funding chapter of this Best Practices Report provided considerations on how the City of Oakland can better leverage itself when seeking transportation funding. But even in the case that the new Oakland DOT manages to secure a healthy amount of financial resources, there is still be the need to plan for and allocate those resources among several projects. This chapter provides key recommendations to implement an effective prioritization process, which will enable Oakland's DOT to develop a transparent process and streamline city's crucial immediate needs with long-term goals.

The recommendations provided here recognize that the DOT should:

1. Leverage previous experience and base-knowledge, whether these are drawn from the city of Oakland itself or from national and international cases;
2. Strengthen both the positive direct impacts of the process namely the actual prioritized projects as well as the positive indirect effects, such as transparency and creditworthiness improvement;
3. Consider elements to enhance the equity and resiliency components of the projects as these are very relevant concerns within transportation and planning more broadly; and
4. Identify the subjective components of the process and make the decision process transparent by providing the rationality behind the decisions, and incorporating public feedback into those decisions.

These considerations serve as a guide to develop a prioritization model that is context-relevant for the city of Oakland as well as based on best practices and recent innovations as discussed further below.

This chapter contains four sections. Section one provides an overview of the general prioritization framework; it highlights the potential benefits that such process provide beyond the simple raking of projects (e.g. transparency, accountability and financing access enhancement). It also outlines how the specific context of the city and the experiences from other regions influence the model. Section two tailors the general framework to directly include resiliency and equity into the process. This section introduces the World Bank's Climate-Smart Capital Investment Planning (CS-CIP) Model[91], which is used to prioritize a sample of five Oakland Transportation Projects. Section three provides a description of the most relevant steps in the World Bank tool by using the five Oakland projects as an example. Section four provides a summary of project prioritization recommendations for the new Oakland DOT. Additionally, at the very end, the chapter presents some city vignettes to show how other cities have incorporated equity and resiliency into project selection. These cases can serve as a future reference for the new Oakland DOT.

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[91] The World Bank's Climate Smart Capital Investment Planning is a tool developed by Dr. Jan Whittington of the University of Washington. This model is part of the World Bank's City Creditworthiness Initiative which assists cities improve their financial performance and secure the private investment for climate-smart infrastructure and services. For more details please visit the Initiative official website:
http://www.worldbank.org/en/topic/urbandevelopment/brief/city-creditworthiness-initiative

## 4.2   Prioritization Framework

A prioritization approach uses a set of criteria to rank the projects. Such criteria can include cost construction and project operating costs as well entail complex cost-benefit analysis or multi-criteria assessment. Figure 18 illustrates a prioritization framework that helps to understand the determinants of the process.
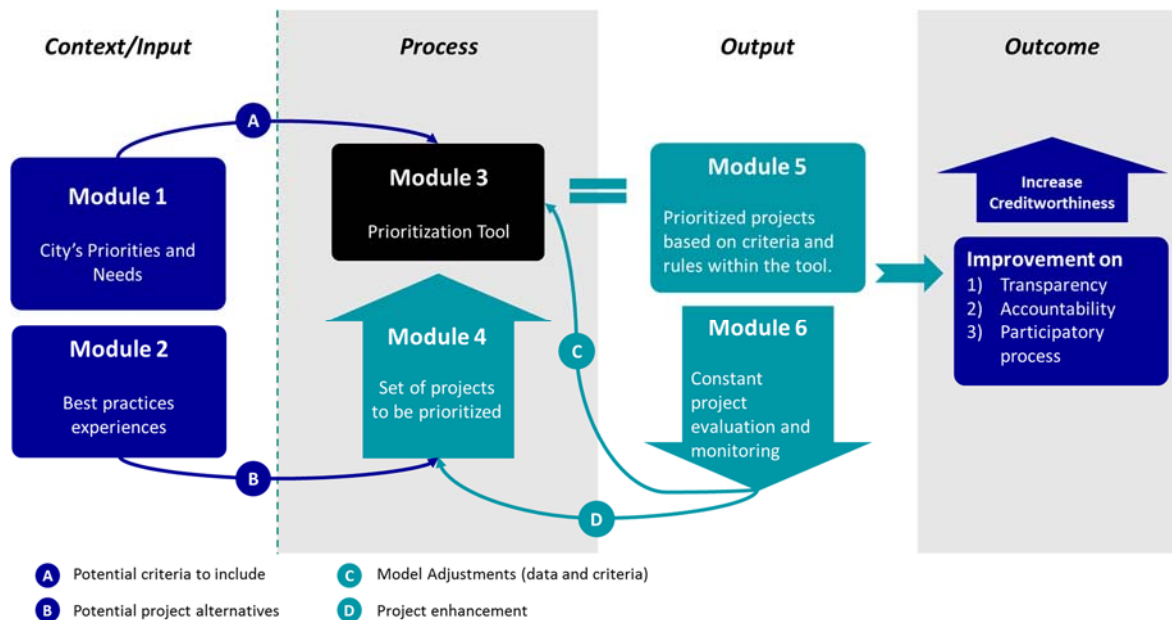


*Figure 18: General prioritization framework for transportation projects*

This framework suggests that the prioritization process is embedded within a larger iterative context that has four stages. These stages are described below and follow Figure 18 from left to right.

1. **Context and input:** this component highlights the effect of the city's context in the prioritization process. The context provides the most critical inputs for the tool. Module 1 represents the specific needs and priorities that will shape the process, in which the city outlines and addresses specific concerns and policy targets. Module 2 is a key component in order to tailor best practices from other cities as appropriate to incorporate into the model.

2. **Process:** this is the set of specific criteria, methods and/or rules used to assess a given number of projects to be implemented. Module 3 represents the tool that receives as an input a series of projects with its own relevant data contained in Module 4. The needs and priorities of the city might be transformed into specific criteria to be used by the model, a situation illustrated by Channel A potential criteria to include. Also, Channel B represents the alternatives that the city can withdraw from other best practices experiences.

3. **Output:** this is the direct result of applying the prioritization tool, which yields a list of ranked projects in Module 5. In addition to representing the ranked projects, the output of the prioritization process can be further used to monitor and evaluate the performance of the projects and the tool itself. Module 6 may capture opportunity areas to include in further prioritization

cycles as well as help to identify and gather data for similar future projects. This will enable a systematic improvement process through Channel C – tool adjustment- and Channel D –project information enhancement.

4. **Outcome:** beyond the immediate effects of the prioritization process, if this process is applied in a systematic, constant and open basis, it can enhance the transparency[92] and accountability of the decisions, and promote the participatory process.[93] As an ultimate result, this will provide financial entities with more certainty and information to assess city's long-term commitments; with a potential improvement of city's creditworthiness.[94]

With respect to the outcome –a long-term impact– Whittington and Lynch[95] proposes that the establishment of a prioritization process focused on low-carbon development and resiliency through a city's Capital Investment Planning efforts can provide several long-term benefits:

▪ Enhancing transparency: With the creation of a systematic process and a stable set of rules, and making these procedures public, the DOT would be in a position to provide clear information to the public and a well-defined rationale of city's priorities. This also would provide increased transparency and open discussion and feedback that may arise from contentious matters.

▪ Enabling accountability: As a result of a transparent process, the DOT would enable outside stakeholders and the general public to evaluate its decisions over time. This makes the DOT accountable for the projects implemented.

▪ Fostering participatory process: If the DOT were to include participants beyond the DOT staff – i.e. city mayor, city council, other relevant departments and the community– the prioritization process would become a participatory process, where the DOT could lead and establish the general policy goals, but allow for feedback into the process.

▪ Increasing creditworthiness: Enhancing transparency and accountability positions the DOT and city to increase its creditworthiness as these two key characteristics, financial institutions, development banks and other entities consider when evaluating a public agency for infrastructure financing.[96]

[92] T. M. Sayers, A. T. Jessop, and P. J. Hills, "Multi-Criteria Evaluation of Transport Options—flexible, Transparent and User-Friendly?," *Transport Policy* 10, no. 2 (2003): 95–105.

[93] Dimitrios A. Tsamboulas, "A Tool for Prioritizing Multinational Transport Infrastructure Investments," *Transport Policy* 14, no. 1 (enero 2007): 11–26, doi:10.1016/j.tranpol.2006.06.001; Darwin Marcelo, "Prioritization of Infrastructure Projects: A Decision Support Framework" (World Bank, n.d.).

[94] Jan Whittington and Catherine Lynch, "Climate-Informed Decisions: The Capital Investment Plan as a Mechanism for Lowering Carbon Emissions" (World Bank Group, 2015), http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/07/30/090224b083036a34/1_0/Rendered/PDF/Climateoinformoingocarbonoemissions.pdf, http://documents.worldbank.org/curated/en/2015/07/24840744/climate-informed-decisions-capital-investment-plan-mechanism-lowering-carbon-emissions.

[95] Ibid.

[96] Ibid.

## 4.2.1   Tailoring the Framework for Oakland's New DOT

The recommendations provided in this chapter use a tailored version of the aforementioned framework. It uses the World Bank's CS-CIP model as a starting point to show how the city of Oakland could integrate equity and resiliency into its prioritization process. For illustrative purposes and to provide relevant examples, a small sample of Oakland's transportation projects – included in the city's 2016 Alameda County funding application – are referenced along the chapter. Figure 19 depicts the tailored approach.
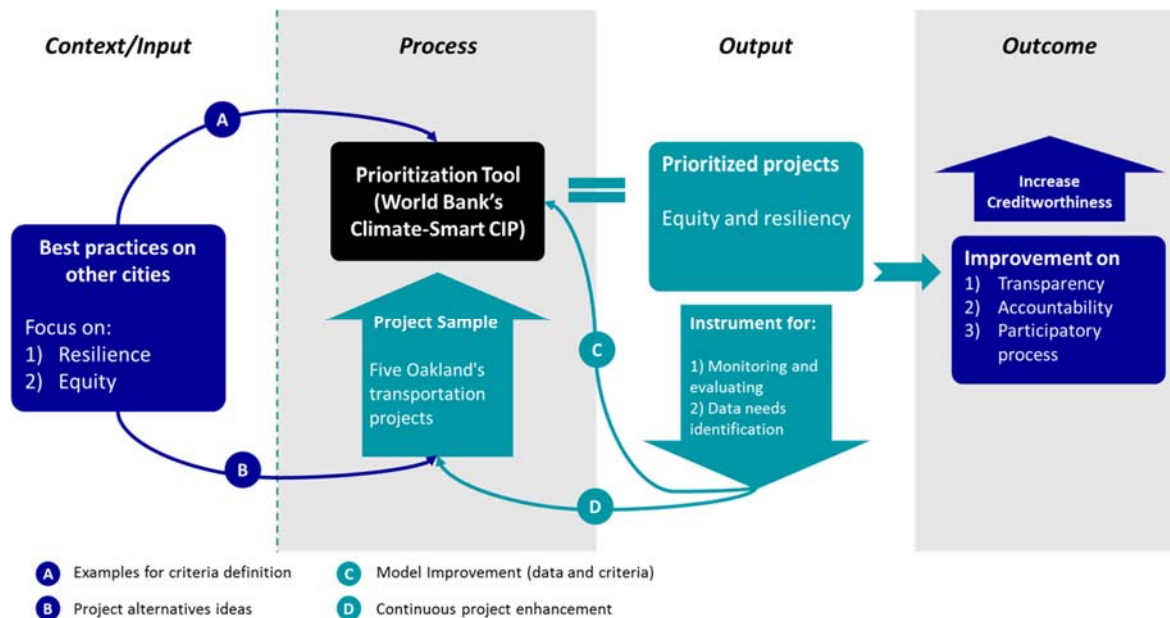


*Figure 19: Tailored prioritization framework for Oakland's new DOT*

The overall recommendations by 218 Consultants are framed within the context of equity and resilience. Equity in transportation planning decisions is relevant because it refers to the distribution of impacts (benefits and costs) and whether that distribution is considered fair and appropriate.[97] Resilience is also an important consideration in infrastructure provision since the future hazards such as flooding, sea level rise, earthquakes and wildfire might reduce the benefits or increase the costs associated with the long term viability of such infrastructure.[98] Therefore, it is necessary to plan for a wide range of possible conditions and design projects to mitigate the negative impacts that could result from future hazards, even for those that may seem unlikely but which could result in significant harm if they materialize. Thus, in addition to traditional criteria such as increasing infrastructure reliability or inclusion in the regional transportation

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[97] Todd Litman, "Evaluating Transportation Equity," *World Transport Policy & Practice* 8, no. 2 (2002): 50–65; Todd Litman, "Evaluating Transportation Equity Guidance For Incorporating Distributional Impacts in Transportation Planning" (Victoria Transport Policy Institute, 2015); Nikolaos Thomopoulos, "Incorporating Equity as Part of the Wider Impacts in Transport Infrastructure Assessment: An Application of the SUMINI Approach" (London School of Economics, 2013).

[98] Victoria Transport Policy Institute, "Evaluating Transportation Resilience: Evaluating The Transportation System's Ability To Accommodate Diverse, Variable and Unexpected Demands With Minimal Risk," http://www.vtpi.org/tdm/tdm88.htm, *TDM*, (2014).

plan, the context component of the framework as shown in Figure 19 includes a revision on how other cities have incorporated resilience and equity in both criteria and as project alternatives. These examples and best practice cases are described in the vignettes throughout the chapter.

The prioritization process discussed in this document makes use of the Climate-Smart Capital Investment Planning (CS-CIP), a tool developed for the World Bank's City Creditworthiness Initiative by Professor Jan Whittington of the University of Washington that is being considered for adoption worldwide.[99] In addition to the World Bank, the CS-CIP was also sponsored by the following core funding partners: the Rockefeller Foundation (RF), the Private Public Infrastructure Advisory Facility (PPIAF), and the Korean Green Growth Partnership.[100]

The CS-CIP tool has two major components: the Climate-Smart Planning guidebook[101] and an Excel-based Model.[102] The guidebook provides detailed instructions in how to use the model. The model provides the CS-CIP structure so that cities can input their own data, priorities, weights and other information so as to prioritize projects and create a capital investment plan budget. 218 Consultants strongly advises Oakland DOT staff to consult both products directly at the official website of the World Bank's City Creditworthiness Academy.[103] Some advantages of the model are that it:

- Integrates several best practices and key procedures into a 12-step standardized process; ranging from making government goals explicit to allowing several stakeholders to weight different criteria;
- Pioneered the inclusion of climate-smart criteria. These criteria are assessed before the incorporation of traditional goals, which in turn enables the city official to account for low carbon path alternatives that otherwise might be overlooked under other techniques;
- Includes a step to assess the vulnerability of infrastructure projects to future hazards. The model performs an evaluation of the potential costs (additional to capital and operations costs) that might be incurred under different emergency scenarios;
- Provides flexibility to include specific goals and concerns where the city may explicitly weight goals while providing the opportunity for other stakeholders to participate in the process;
- Draws from a process that cities often use, the Capital Investment Plan, which is a very standard instrument to develop a program of infrastructure projects such as transportation. Moreover, a

[99] The World Bank and its partners have implemented the City Creditworthiness Academy, an effort to provide training to low- and middle-income cities on how to use the tool and its associated benefits. Some of the past trainings events have been conducted in Bogota, Colombia; Seoul, Korea; Nairobi, Kenya; Kigali, Rwanda; and Amman, Jordan.

[100] Other implementation partners are: C40 Network, UN-Habitat, Findeter, Municipal Institute of Learning (MILE) and the Korean Development Institute.

[101] Jan Whittington, "Whittington CS CIP Handout Amman May15 FINAL.pdf - File Shared from Box," accessed December 10, 2015, https://app.box.com/s/bky70kdu7ru707bwoyajhfelmbsre1rt.

[102] The latest version of Excel Model must be obtained directly from the City Creditworthiness Academy Materials webpage: https://collaboration.worldbank.org/docs/DOC-13924. Accessed Dec. 10, 2015.

[103] The World Bank, "City Creditworthiness Academy Materials | Collaboration for Development," accessed December 10, 2015, https://collaboration.worldbank.org/docs/DOC-13924.

robust CIP process enables investors and general public to understand how the city's decision-
making and its planned infrastructure commitments, which enhances creditworthiness; and

- Provides for a comprehensive process that takes into consideration several stakeholders and stages, but it is not technically complex to understand and implement.

Figure 20 shows the 4 phases and 12 steps of the CS-CIP process. Broadly, phase 1 prepares the restrictions or conditions that the projects must meet. Phase 2 involves the selection of low-carbon and resilient alternatives. Phase 3 uses subjective and objective criteria to assess all the projects and produce a ranking. Finally, phase 4 generates the capital investment plan based on the prioritized projects from phase 3.
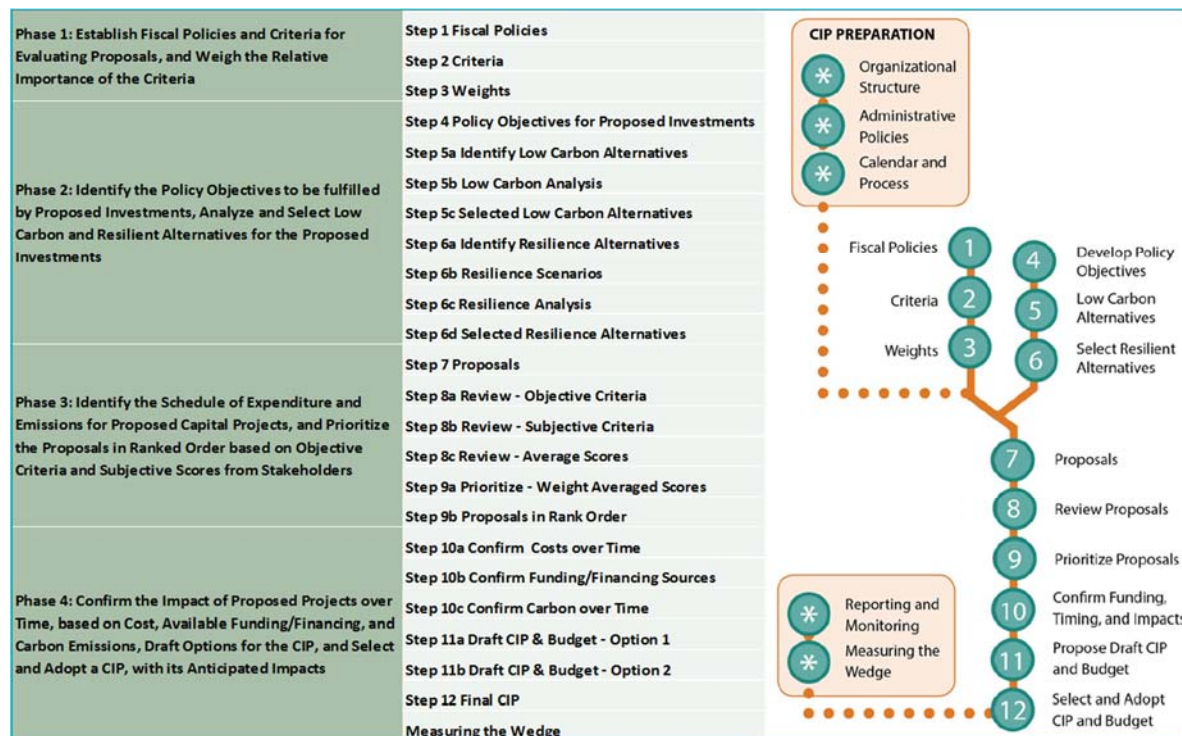


*Figure 20: Overview of the World Bank's CS-CIP structure[104]*

As mentioned, for illustrative purposes, a sample of five projects is used to provide concrete examples and ideas on how the CS-CIP tool could be used and adjusted to meet Oakland specific context. The projects were drawn from a larger set of Oakland transportation infrastructure projects included in the city's 2016 Alameda County funding application. Table 11 briefly describes the projects that will be prioritized.

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[104] Whittington, "Whittington CS CIP Handout Amman May15 FINAL.pdf - File Shared from Box."

*Table 11: Oakland transportation infrastructure projects to be prioritized*

| Project Name | Project Type | Brief Description |
|---|---|---|
| **14th Avenue Streetscape Project** | Complete streets | Streetscape improvements along 14th Ave, from E. 8th/E. 12th St to E. 27th St. Project includes traffic signal pole upgrades, median/roadway reconfiguration, pavement work, bike lane striping, sidewalk and curb & gutter replacement, updating crosswalks, pedestrian lighting, and landscaping. |
| **MLK Streetscape Project – Phase II** | Complete streets | The Martin Luther King (MLK) Streetscape Project – Phase II builds off of the improvements of Phase I to provide pedestrian, bicycle and transportation safety improvements as well as a range of streetscape enhancements to a key neighborhood corridor in West Oakland. |
| **Broadway Shuttle Expansion** | Transit | The Broadway Shuttle Expansion project seeks to extend the shuttle route and service hours, and upgrade the project to an Enhanced Bus or Electric Streetcar line to enhance transit circulation and mobility, and catalyze mixed-use Transport Oriented Development (TOD) and economic development in and adjacent to downtown Oakland. |
| **City-Wide Intelligent Transportation System Program** | Technology | This program will upgrade and build new traffic signal network infrastructure using the latest traffic signal equipment, fiber optic technology, live video feeds and communication equipment to proactively manage traffic, reduce vehicle emissions, improve safety, and provide real-time information. |
| **Coliseum BART to Bay Trail Connector** | Bicycle/pedestrian | The Coliseum BART to Bay Trail Connector is a multi-use pathway linking the existing Bay Trail at the intersection of Oakport Street and Zhone Way with regional transit at the Coliseum BART Station. The 1 mile pathway will cross I-880 and proceed along 66th Avenue and San Leandro Street. |

In moving forward, it is worth noting three key considerations. First, although 218 Consultants recognizes there are other possible directions and models the City could use, the CS-CIP tool provides a robust starting point to include equity and resiliency in project prioritization. Second, the prioritization of the five projects is for illustrative purposes to demonstrate use of the tool for the City's consideration. Third, 218 consultants applies steps 1 to 9 to the five Oakland projects selected as these are directly related to the prioritization process. However, the remaining steps (steps 10 to 12) are not reviewed in this report; those steps correspond to the capital investment plan and its integration with the prioritized process, while it is indeed an important feature of the World Bank tool, the scope of this report is to concentrate on the prioritization process.

## 4.2.2  Prioritizing Projects Using the CS-CIP Tool

The CS-CIP tool bases its analysis on a key distinction between project alternatives and selected alternatives. Project alternatives consist of different approaches to execute the same project and to fulfill the same policy goal (see step 4). The assessment of project alternatives is the initial stage of the prioritization process; it ensures that the alternative with a higher equity, low carbon and resiliency impact is selected. This project alternative assessment is referred to as screening assessment.

The selected alternatives are the preferred choices for each one of the policy goals. The selected alternatives will be ranked using equity and resiliency criteria, as well as all the relevant DOT traditional requirements. The selected alternatives assessment is equivalent to the prioritization assessment.

### *4.2.2.1  Fiscal Policies*

The fiscal policies are the rules established to fund, operate and maintain the infrastructure projects proposals. These rules also define the operating mechanisms for revenues (if any) or the debt constraints of the projects. Fiscal policies should be applied across all the projects in the CIP. Figure 21 describes examples of fiscal policies used by the World Bank in the Climate-Smart Planning Guidebook.[105]

| Fiscal Policies (FILL IN) |
|---|
| FP-1 | Capital budget allocated annually from operating margin |
| FP-2 | Roll over capital budget surplus to the next capital budget year |
| FP-3 | Accumulate special reserve funds annually from project operating surplus for restoration & modernization |
| FP-4 | Estimate operating and maintenance costs at no less than 3% of capital costs |
| FP-5 | Temporary rollover of operations and maintenance deficits limited to 5 years, and only when current year funds are on target to meet projections for surplus within CIP period |
| FP-6 | Cross-subsidies between projects for operations and maintenance are allowed, if approved annually by resolution |
| FP-7 | Project funding through grants is preferred, if compatible with CIP decision-making criteria |
| FP-8 | User fees will be structured to consider ability-to-pay and the equitable distribution of costs and benefits |
| FP-9 | Debt service will be capped at 10% of the local budget (2% of average per capita income) |
| FP-10 | Borrowing will only be used for capital investment needed for government to perform its mandatory responsibilities and functions |
| FP-11 | Every financial report and debt statement will be subject to full disclosure including the CIP |

*Figure 21: Fiscal policies used in the CS-CIP prioritization tool[106]*

Fiscal policies are closely related to the project's funding and capital allocation and those rules depend on Oakland specific constraints and regulations. However, for the purposes of this report, the fiscal policies

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[105] Ibid.

[106] Ibid.

used for the prioritization process will be the same used by the World Bank and which are shown in Figure 21.

It is advised to keep these policies as stable and predictable as possible, regardless of the rules itself to the extent feasible so that the outside investors and the community are better equipped with understanding on the City's selection process, which in turn will facilitate risk assessment and enhance accountability and transparency.

### 4.2.2.2  Criteria

The criteria constitute the underlying core component in any prioritization process. The actual ranking results are strongly determined by the decisions taken at this step. The normative and contentious character of criteria definition is unavoidable; however, Oakland DOT can make this process more transparent by providing the rationale behind the criteria selection and allowing other city departments and the community to provide feedback.

To enhance the participatory process, Whittington and the World Bank[107] recommend including the participation of other stakeholders for both, assigning weights (step 3, Weights) and scoring projects (step 8, Score standardization objective measurement and stakeholder scoring) for each criteria. However, before this process occurs and to ensure that the project alternatives provide the greatest benefits in terms of resilience and low-carbon emissions, two sets of criteria would be implemented:

- First, climate-smart criteria would be implemented, which function as screening criteria. Considering that one project might have several alternatives or modes of implementation, use of screening criteria ensures that the selected alternatives are resilient and low-carbon emitters.
- Second, the prioritization criteria establish all the priorities/requirements that will affect project ranking.

In this step, the new Oakland DOT could adjust the screening criteria and the prioritization criteria to fit city priorities:

- If equity and resilience are key concerns that the DOT would consider in evaluating project alternatives, then these criteria could be included in the screening criteria. Figure 22 presents an example of new screening criteria that the city could add to the World Bank model.
- Once project alternatives have been evaluated using the screening criteria, the DOT would have a resultant portfolio of selected projects. Through the prioritization criteria, the DOT then would rank the selected projects based on criteria reflecting city priorities. Figure 23 shows the prioritization criteria used in the present chapter.

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[107] Ibid.

| Climate and equity-Smart Criteria for Selection of Low Carbon Alternatives | |
|---|---|
| **Required** | |
| *SC-1 | Project exhibits strategic planning for equity through cost burden reduction for disadvantaged population |
| *SC-2 | Project exhibits strategic planning for equity through time travel reduction for disadvantaged population |
| **SC-3 | Project exhibits strategic planning for carbon through any approach (scale, source, technology) |
| SC-4 | Project exhibits strategic planning through minimized capital costs. |
| SC-5 | Project exhibits strategic planning through minimized life-cycle costs. |
| SC-6 | Project exhibits resilience through minimized replacement cost. |
| SC-7 | Project minimizes vulnerabilities as exhibited in climate informed cost. |

Figure 22: Proposed screening criteria for the World Bank model, adjusted for Oakland's DOT[108]
*218 Consultants screening criteria examples to include equity.
**Adjusted criteria based on World Bank original criteria.

| Climate and equity-Smart Criteria for Project Prioritization | |
|---|---|
| **Required** | |
| *CES-1 | Project minimizes total transportation costs for disadvantaged communities |
| CES-2 | Project minimizes vulnerabilities as exhibited in climate informed cost. |
| CES-3 | Project capital costs are consistent with fiscal policies and are feasible. |
| CES-4 | Project life-cycle costs are consistent with fiscal policies and are feasible. |
| CES-5 | Project minimizes replacement costs from climate impacts and other hazards. |
| **Local Government Criteria For Project Prioritization (FILL IN)** | |
| LGC-1 | Project is required by a regulatory action, legal settlement, or other legal mandate. |
| LGC-2 | Project will provide public health and safety benefits or will reduce health and safety risks. |
| LGC-3 | Project mitigates carbon emissions |
| **LGC-4 | Project is located within a Priority Development Area (PDA) |
| **LGC-5 | Project improves access and operation of transit services |
| **LGC-6 | Project improves and promotes non-motorized and public transit modes |
| **LGC-7 | Project is an integral part of a mobility hub |
| LGC-8 | Project has been identified as a priority in other planning initiatives, such as general or strategic plans. |
| LGC-9 | Project is related to a completed project or previously approved program or related to another priority project. |

Figure 23: Proposed prioritization criteria for the World Bank model, adjusted for Oakland's DOT[109]
*218 Consultants screening criteria examples to include equity.
**Adjusted criteria based on World Bank original criteria.

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[108] Ibid.

Of note, some screening criteria also are used in the prioritization criteria. The reason is that screening criteria provide a way to ensure that those concerns are particularly addressed (e.g. equity) when evaluating alternatives to implement the same project. However, the city might consider some screening criteria (e.g. equity) still relevant for the assessment across all different types of projects in the next stage of evaluation.

For example, the screening criteria, SC-1, *"Project exhibits strategic planning for equity through cost burden reduction for disadvantaged population"* can be applied to the Broadway Shuttle Expansion Project Alternative 1 which would extend service towards the Rockridge neighborhood, while Alternative 2 extends towards West Oakland. Assuming that under SC-1, Broadway Shuttle Expansion Project Alternative 2 exhibits larger impacts on cost burden reduction for a disadvantaged population, therefore it would be selected over Alternative 1 for the prioritization process.

Once selected, the Broadway Shuttle Expansion Alternative 2 would later be evaluated against the 14th Avenue Streetscape Project, MLK Streetscape Project, Intelligent Transportation System Program, and Coliseum BART to Bay Trail Connector selected alternatives.

As shown in Figure 23, the prioritization criteria are divided in two categories climate and equity-smart criteria (CES) and Local Government Criteria (LGC). This division ensures that all stakeholders will weight and score projects regarding city's key concerns, step 3 –Weights provides a more detailed explanation. For now it is important to note screening criteria (SC) encompass the priorities of CES.

While the systematization and classification of the criteria, and specially its stability across time, are key elements to foster trust and transparency, the criteria definition will be subject to interpretation. To mitigate contentiousness and increase acceptance of the results, the DOT should provide spaces for criteria discussion and definition, and create channels to receive feedback from other city's departments, partner agencies, community organizations, the broader community and other key stakeholders.

### 4.2.2.3   Weights

After criteria definition, step 3 consists of weight allocation for both the screening criteria and the prioritization criteria. The World Bank methodology allocates weights through distribution of points in which each stakeholder participating in the prioritization process would have a fixed budget of points to distribute across the different criteria. This allocation will reflect the relative importance of each criterion for each stakeholder.

For illustration purposes the prioritization process depicted here considers the participation of three stakeholders: Oakland DOT, Public Works Department, and the Community. Each of these three participants will distribute 100 points across the screening criteria and 100 points across the prioritization criteria.

Figure 24 shows a hypothetical weight distribution for the screening criteria. There is no particular set of guidelines for weight distribution, as long as the sum of points equals the point budget which in this case is

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[109] Ibid.

100 points. After each stakeholder has assigned weights, an average weight is calculated. For this exercise the calculation is based on a simple average (each stakeholder's weight counts one third of the average). Although, the DOT can consider alternative weighted averages to emphasize some stakeholders' participation, it should clearly state and document the reasoning for transparency purposes.

| Climate-Smart Criteria for Selection of Low Carbon Alternatives | DOT | Public works | Community | Final Averaged Weight |
|---|---|---|---|---|
| Required Criteria for Climate-Smart Capital Investment Plans | Weights (FILL IN) | | | |
| Project exhibits strategic planning for equity through cost burden reduction for disadvantaged population | 5 | 8 | 0 | 4.3 |
| Project exhibits strategic planning for equity through time travel reduction for disadvantaged population | 5 | 8 | 10 | 7.7 |
| Project exhibits strategic planning for carbon through any approach (scale, source, tehcnology) | 5 | 8 | 10 | 7.7 |
| Project exhibits strategic planning through minimized capital costs. | 25 | 30 | 25 | 26.7 |
| Project exhibits strategic planning through minimized life-cycle costs. | 25 | 30 | 25 | 26.7 |
| Project exhibits resilience through minimized replacement cost. | 20 | 8 | 15 | 14.3 |
| Project minimizes vulnerabilities as exhibited in climate informed cost. | 15 | 8 | 15 | 12.7 |
| TOTAL (100 point allotment to each Participant) | 100 | 100 | 100 | 100.0 |
| TOTAL DISTRIBUTION OF POINTS for Selecting Low Carbon Alternative | 100 | 100 | 100 | 100 |

*Figure 24: Weight allocation for screening criteria for a hypothetical project[110]*

Figure 25 shows hypothetical weight distributions for the prioritization criteria. Similarly to the screening criteria, stakeholders receive 100 points to distribute among climate and equity-smart criteria and the local government criteria. The final weight is the average of each stakeholder individual weight. However, the World Bank methodology recommends assigning a predefined total amount of points for climate and equity-smart criteria and the local government criteria. In this example, participants must allot 40 points across CES and 60 points across LGC.

| | Climate-Smart Criteria for Project Prioritization | DOT | Public works | Community | Final Averaged Weight |
|---|---|---|---|---|---|
| | Required Criteria for Climate-Smart Capital Investment Plans | Weights (FILL IN) | | | |
| CES-1 | Project minimizes total transportation costs for disadvantaged communities | 4 | 15 | 8 | 9.0 |
| CES-2 | Project minimizes vulnerabilities as exhibited in climate informed cost. | 5 | 6 | 8 | 6.3 |
| CES-3 | Project capital costs are consistent with fiscal policies and are feasible. | 15 | 7 | 8 | 10.0 |
| CES-4 | Project life-cycle costs are consistent with fiscal policies and are feasible. | 12 | 7 | 8 | 9.0 |
| CES-5 | Project minimizes replacement costs from climate impacts and other hazards. | 4 | 5 | 8 | 5.7 |
| | TOTAL (40 point allotment to each Participant) | 40 | 40 | 40 | 40.0 |
| | Local Government Criteria for Project Prioritization | DOT | Public works | Community | Final Averaged Weight |
| | From Step 2 | Weights (FILL IN) | | | |
| LGC-1 | Project is required by a regulatory action, legal settlement, or other legal mandate. | 8 | 8 | 3 | 6.3 |
| LGC-2 | Project will provide public health and safety benefits or will reduce health and safety risks. | 5 | 6 | 9 | 6.7 |
| LGC-3 | Project mitigates carbon emissions | 5 | 8 | 6 | 6.3 |
| LGC-4 | Project is located within a Priority Development Area (PDA) | 7 | 5 | 11 | 7.7 |
| LGC-5 | Project improves access and operation of transit services | 8 | 6 | 7 | 7.0 |
| LGC-6 | Project improves and promotes non-motorized and public transit modes | 9 | 7 | 8 | 8.0 |
| LGC-7 | Project is an integral part of a mobility hub | 7 | 9 | 10 | 8.7 |
| LGC-8 | Project has been identified as a priority in other planning initiatives, such as general or strategic plans. | 4 | 7 | 3 | 4.7 |
| LGC-9 | Project is related to a completed project or previously approved program or related to another priority project. | 7 | 4 | 3 | 4.7 |
| | TOTAL (60 point allotment to each Participant) | 60 | 60 | 60 | 60.0 |
| | TOTAL DISTRIBUTION OF POINTS for Project Prioritization | 100 | 100 | 100 | 100 |

*Figure 25: Weight allocations for screening criteria for a hypothetical project[111]*

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[110] Ibid.

[111] Ibid.

The World Bank developed the overall process to ensure climate considerations are fully addressed at two levels: the selection of alternatives and prioritization of those selected alternatives. This same rationality can be applied to ensure Oakland DOT's key concerns are addressed. The present analysis has considered equity and resilience as those key concerns; however, the methodology could be adapted to further incorporate other relevant DOT goals. The weighting process designed by the World Bank is one of its most salient features because of the following factors:

1.  **Screening criteria weights:** it increases participatory process at the very beginning of project alternative selection. While the DOT is still in charge of generating project alternatives, the stakeholders will have a vote on which criteria should have more relevance. Ultimately this enhances the validity and potential acceptance of the results.

2.  **Prioritization criteria weights:** it ensures stakeholders address the key DOT concerns (in this case equity and resilience) and not only their specific priorities. If there is no predefined amount of points between CES and LGC, there is a risk that stakeholders do not give any priority to equity and resiliency.

The relative priority established by the DOT among CES and LGC might be perceived as a discretionary process if the allotment points are continuously changed. Rather, if there were stability, the process then would reflect DOT long-term commitments. This would enhance transparency and accountability and transparency both to key stakeholders, the broader public as well as to potential funders and financial institutions interested in financing infrastructure projects.

### 4.2.2.4   Policy Objectives

This step outlines the policy objectives for each project as would be stated by the city. Long range transportation plans, city specific plans, and other relevant ordinances also might provide guidance for its definition. Figure 26 shows the city's policy objectives for the five Oakland projects. It is important to note that the objectives are general enough so that they indicate what the project should ultimately address; but also flexible enough to enable a different alternatives to meet the goal. As an example, on Figure 26, project 3 Broadway Shuttle has "Extend current route and service hours of Broadway shuttle" as policy goal. This goal provides enough flexibility to select the type of technology of the bus, the specific routs of the extension and definition of service hour's extension. In contrast a policy goal such as "Extend Broadway shuttle towards Rockridge with a street car system" would restrict alternative proposals and with it reduce the possibilities of finding equitable and resilient alternatives.

| Number | Project (FILL IN) | Policy Objective (FILL IN) |
|---|---|---|
| 1 | 14th Avenue Streetscape | Improve safety and accessibility for vehicles, bicyclists, pedestrians and transit users along 14th avenue. |
| 2 | MLK Streetscape Project | Improve pedestrian safety and accesibility, and transit operations along MLK avenue. |
| 3 | Broadway Shuttle | Extend current route and service hours of Broadway shuttle. |
| 4 | Intelligent Transportation System Program | Upgrade and develop the required technology to proactively manage traffic and provide real-time information. |
| 5 | Coliseum BART to Bay Trail Connector | Provide bicycle and pedestrian connection from Coliseum BART to the regional Bay Area trail. |

*Figure 26: Policy objectives for transportation projects in Oakland[112]*

### 4.2.2.5  Low Carbon Alternative Selection

Under the original CS-CIP process, this step consists of the identification of low carbon alternatives for each of the proposed projects. As mentioned in step 3 – Weights, this is conducted before the prioritization process across all type of projects. 218 Consultants recommends this is the most suitable step to leverage on the World's Bank methodology and incorporate the equity screening criteria during this step because it ensures that before the prioritization criteria is applied, an enough number of alternatives with equity features have been submitted and thoroughly analyzed.

The World Bank recommends evaluating the conventional project and at least two low-carbon (and in this case equitable) alternatives. There are two procedures within this step:

1.  The first part is to assign objective scores to each project and its alternatives. The World Bank methodology recommends evaluating low-carbon features such as: scale, low carbon energy sources, energy saving technology and total carbon pollution. The suggested adjustment provided here is to incorporate two additional objective measures to assess criteria SC-1 and SC-2 (See Figure 22 above for reference). The first could be average cost per day, and the second average daily travel time, both for disadvantaged populations. Figure 27 shows how the model would be adjusted accordingly in response to these measures. Scores would be assigned in reference to the conventional project alternative. For example, Figure 27 below indicates that for the 14th Avenue Streetscape project, the daily average transportation cost of a disadvantaged individual is $20. Then this value will represent the 100% and the proportion equals to 1. Then, alternative 2 and 3 has decreased the cost to $15, which implies the percent has decreased to 75% from the original $20 and the proportion decrease to ¾ with respect to the original.

2.  After all the projects and alternatives have been evaluated by the objective measures for each criteria, those "raw" measures are multiplied by the criteria weights defined in step 3 – Weights, which highlight priority features for the city of Oakland and other involved stakeholders. Of note, before the actual prioritization process, all the stakeholders must assign weights for the low-carbon criteria, which then ensures the inclusion of low-carbon evaluation into the process as would be the same for inclusion of equity. Without this step, there is the potential for low-carbon and equity not to be directly considered.

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[112] Ibid.

| 1 | 14th Avenue Streetscape | | | |
|---|---|---|---|---|
| Criteria | Units | Conventional | Alternative 1 | Alternative 2 |
| **Cost burden** | Proportion of Conventional | 1 | 3/4 | 3/4 |
| | Percent of Conventional | 100% | 75% | 75% |
| | Average cost per day (USD) | 20 | 15 | 15 |
| **Travel time** | | | | |
| | Percent compared to conventional | 100% | 63% | 63% |
| | Average time per day (min) | 80 | 50 | 50 |

*Figure 27: Alternative definitions for screening criteria[113]*

### 4.2.2.6  Resilient Alternative Selection

In this step, the city must evaluate how different the different alternatives for each project might perform under a wide range of plausible hazard conditions.[114] This performance evaluation analyzes the cost consequences of each alternative. The key issue in this step is to consider how costly infrastructure repair or replacement would be, if certain hazards were to occur – particular to the city's location – such as floods, sea level rise, or earthquakes in the future.

This step contains four stages:

1.  Stage 1 depicts some basic characteristic of each project, location, size, and current land use. Then for each project identifies the vulnerabilities and potential hazards, as well as site designs that could mitigate the impacts of those hazards.
2.  Stage 2 establishes an economic valuation for each conventional project and its alternatives. Each project has a set of induced changes and end state results. The induced changes determine which end of state corresponds to each alternative. Each end state has capital costs, operational costs and site-specific design costs.
3.  Stage 3 is based on the proportion of incidence of value loss for each alternative and the estimated total costs of losses from each alternative in all future extreme events. This stage identifies the most robust alternative to future hazard events; this highlights the more resilient alternative for each project.
4.  Step 4 consolidates the information of the selected low carbon (and equitable) alternatives (step 5, Low carbon alternative selection), the robustness analysis and cost loss of future extreme events. The data from this stage serve as input information for the prioritization process across all projects (step 8, Score standardization objective measurement and stakeholder scoring).

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[113] Ibid.
[114] Ibid.

### 4.2.2.7  Proposals

This step involves the preparation of the selected project proposal materials for use in the next steps of the process. The proposal should include standardized information across all projects, which will serve for the prioritization process (Step 8, Score standardization objective measurement and stakeholder scoring). If the DOT is the only one department overseeing the projects, then it is the responsible entity for generating this information and the proposal. However, if other departments were to be involved in the projects, they also could contribute to proposal creation by providing data or creating the proposal.

The latter, requires the coordination between the DOT and the rest of the departments/areas involved in the projects. As expected, internal coordination will enhance and smooth the prioritization process. The internal and external coordination section in this report provides recommendations to enhance communications within the new DOT.

The World Bank methodology suggests considering the following information for each project:

- The project's general details
- Its purpose
- Its costs (parceled out by year and project phase)
- The financing sources and revenues involved
- The project's impact on climate change and human health
- Its relation to legal mandates
- Its timing and linkages to other projects
- Its economic impact
- Efficiencies the project will create
- How the project will improve access and service, and
- The project's consistency with planning goals and public process

Although the Excel model does not use all the data mentioned above, gathering this information in one place ensures decision-makers and other stakeholders can analyze the relevant components of each project. Moreover, bond rating agencies often requires similar information, so having this available facilitates the bond issuing or funding processes.

### 4.2.2.8  Score Standardization, Objective Measurement, and Stakeholder Scoring

A committee defined by either the DOT or the city government itself would review each of the project's proposals submitted for prioritization. It is recommended that discussion of project strengths and weaknesses, as well as score sheets be open and available to the public. In the tool itself, the review process is conducted through the assessment of two sets of criteria defined in previous steps.

First, the objective criteria would be used as consists of the evaluation of the carbon emission and the climate informed cost of each project. The lowest scores represent better options since they represent projects with lower carbon emissions and lower climate-related costs. The scores are normalized in a scale from 0-10, where 10 would represent the project with the highest reduction in low carbon and lower cost impacts related to future hazards.

Second, using climate-smart criteria and local government criteria from step 2, each stakeholder assigns a score from 0 to 10 to each project. The score reflects the subjective stakeholder's assessment on how each project fulfills the specific criteria. A score of 10 indicates that the project completely meets the criteria from the stakeholder's perspective, whereas a 0 score indicates that the project does not fulfill the criteria in any way. Then, the final score for each project will be the arithmetic average of the individual scores assigned by each participant.

### 4.2.2.9   Prioritization

In this step, the average scores are multiplied by the weights assigned previously. It is important to recall that during step 3 – Weights, each stakeholder assign a certain amount of points to each set of climate-smart criteria and local government criteria, so this process ensures that all the stakeholders had the opportunity to assign the relative weights and also score every project with regards to each criteria. Depending on the stakeholders selected for participation, this could lead to increasing public engagement in the process.

Next, the weighted project scores of each stakeholder are added up to determine a global score for each project derived from the sum of the climate-smart and the local government scores. The points obtained by each project will determine the final priority for implementation: the higher score the higher priority.

## 4.3   Recommendations and Conclusions

218 Consultants recommends that the new Oakland DOT implement a project prioritization process to facilitate the best use of limited financial resources and to enhance its transparency, accountability and ultimately its creditworthiness. Such a process should favor the development of projects that meet the city's demands and simultaneously provide the greatest benefits for the community. In doing so, the city should consider both the short-term and long-term impacts of the projects. The short run impacts include the selection of projects based on relevant specific criteria such as equity promotion and mobility enhancement. Whereas long-run impacts bolster DOT transparency, reliability and commitment with the prioritized projects. Ultimately, the prioritization process will improve DOT bond issuing conditions and access to global climate funds. The team recommends that the city's prioritization process consider the following aspects:

- **Use the World Bank Climate-Smart Capital Investment Planning (CS-CIP) tool** as a starting point and a guide to systematize and tailor a prioritization process suitable for the DOT specific needs. The CS-CIP tool is a comprehensive tool, yet very straightforward methodology designed to help cities in their infrastructure prioritization. The tool emphasizes low-carbon emission and resilient projects so that the alternatives with the best performance in those areas are then evaluated to establish a hierarchy for funding and implementation. The tool's design also can be modified to accommodate other city-wide priorities such as equity in addition to climate concerns.
- **Adopt a two-step assessment process:** in the first step the DOT should develop a set of screening criteria that each project should meet. As each project may have different alternatives for implementation, those alternatives should be assessed using the defined screening criteria. The

criteria at this step should be defined in a way that objective indicators and measures can be used for assessment. In the case of the World Bank CS-CIP tool, the criteria are low-carbon emissions and resilience, hence the two measures designed to assess those criteria are total $CO_2$ emissions generated and cost impact under future hazard materialization. We recommend to keep these two criteria for Oakland's DOT prioritization tool, however, at this step the DOT might include additional core priorities such as equity. To do so, the city can define criteria based on the disadvantaged population served by the alternatives, and use the Disadvantaged Population Index defined in the mobility hub technical report as the objective measurement.

The second step should include general priorities through a different set of criteria which can include: required by a legal mandate, increase infrastructure reliability or improve service quality among others. The evaluation at this phase will be conducted for all the alternatives selected in step one. The assessment will consist of scoring each of the selected alternatives for each criteria using a Likert scale from 0 to 10, where 0 indicates that the project does not meet the criteria at all and 10 the project does fulfill it completely. The scoring at this step is completely subjective and will depend on the perception of each stakeholder; nevertheless the weighting, process mentioned in the next recommendation, will reduce potential inconsistencies within stakeholder's priorities. Additionally, the city of Oakland can include some criteria that they have been already using in their current prioritization process, such as: project within a Priority Development Area or transit operation and access improvement.

- **Establish two sets of criteria weights** to represent the relative importance of the city's priorities and related criteria in both assessment steps. The first set of weights will be applied to the "objective" measures assessed for each screening criteria determined during step One. This requires that the DOT identifies the best indicators to measure the fulfillment of each project. For instance, in the case of low carbon and resilience, the CS-CIP tool uses total $CO_2$ emissions and avoided cost from resilience under extreme events. The second set of weights should be tied to "subjective" assessment of the DOT general priorities that are determined during step 2. The weights defined here will be combined through a process as discussed below in step 4 that involves stakeholder scoring for each of the defined criteria.

- **Enable the participation of relevant internal city stakeholders** in the criteria weighting definition and the project scoring assessment. We suggest that the DOT identifies the relevant stakeholders that will have the opportunity to provide weights and/or score projects. Stakeholders could include DOT staff, the Mayor, City Council members, City Administrator, and other relevant departments such as the Planning Department.

- **Conduct project prioritization process and integrate into the city's capital investment plan process.** At the same time, recognize the subjective nature of some steps within the prioritization process. While we recommend the development of a methodology that is as systematic and objective as possible, the process also may have components that are of an unavoidable discretionary nature. Hence, instead of trying to deny or conceal those aspects, we suggest to explicitly indicate and embrace the subjective and discretionary steps within the process. This will shed light into opportunity areas for improving the model or increased transparency in how the

DOT makes decisions. In particular, the team has identified the following three areas to be aware of: project selection, project alternatives, and project proposal information; criteria selection and weighting; and data and assumptions.

# 5   Performance Management

## 5.1   Problem Statement

Cities around the country are looking for new solutions to help deliver the services they promise to provide to their residents after facing decades of underinvestment in infrastructure and the post-recession realities of decreased municipal revenues. With advancements in technology, it has become much easier for cities to gather timely information about more aspects of government services. Cities across the United States are adopting performance management, the process of collecting and analyzing data to inform decision-making. Performance management can help cities spend scarce resources effectively and prioritize community needs while expanding its infrastructure efficiently and equitably. By implementing performance management, cities are responding to increasing public pressure to make governments more transparent and accountable by allowing the public to clearly see the goals of the city, how resources are allocated to meet those targets, and progress towards those objectives.

This chapter examines the current state of performance management in Oakland's Department of Public Works, followed by a study of best practices across the country through academic literature review, papers from cities with respected performance management programs, and interviews with their staff. The report concludes with recommendations for creating an Office of Performance Management and applying innovative practices to Oakland's new Department of Transportation.

## 5.2   Research Methods

The team started by reviewing existing studies of government and business performance management groups. This research was published either by city agencies, government or industry groups, or academic journals. The team also went through a number of existing online municipal government performance reports and "dashboards" (online, interactive reports) to compare the published studies to the current state of the practice. The team chose to study cities that have been cited by literature or other municipalities as exemplary programs. Focus was given to cities that also espouse the values of sustainability and resiliency. In addition, the team conducted seven interviews with staff individuals within the City of Oakland, departments of transportation or public works or planning within other cities, and performance and innovation offices in other city governments.

## 5.3   Existing Conditions

The Oakland Department of Public Works maintains an internal set of performance metrics and goals, including many related to transportation (see Appendix C). These measures were developed at the request of department leadership and chosen based on parameters such as the value to community and resource intensity to the department. Each working group, such as Traffic Signal Maintenance & Management, Transportation Planning & Funding, and Parking Meter Repair, has its own set of metrics. They may have specific targets, such as response times to requests; or indicate workload without having targets, such as the volumes of requests. These metrics are collected monthly, with year-to-date numbers. Examples of the infrastructure metrics tracked include the number of potholes patched, number of traffic signal poles replaced, number of field survey completed, and number of signalized intersections retimed. Some data

underpinning the metrics are available to the public through OakData, the City's open data portal (https://data.oaklandnet.com/).

According to interviews with city staff, one of the strengths of existing DPW reporting systems is that the entire department is using the same basic tools to track work. This means that information is not siloed and data is more easily gathered for reporting. Interviewees also mentioned challenges, including:

- **Data quality:** some groups are not as thorough in entering task completion data, so staff believe they are doing better than the reports show.
- **Tracking problem severity:** the data input systems do not always collect problem severity, so there are reporting limitations.

With these opportunities and challenges in mind, the current database and performance measures are a promising starting point to build a comprehensive performance management system for transportation in Oakland.

## 5.4   Literature Review

Performance management involves collecting information on indicators of system and organizational performance and then using them to inform decision-making. Although most local governments have recognized the need to collect performance data, the practice of using data to improve management or the decision making process is not as widespread. To better serve the public, agencies have to go beyond simply reporting data to using it to improve service quality and efficiency.[115]

Furthermore, performance management is not limited to cost benefit analysis of projects. An influential corporate strategy paper by Kaplan and Norton introduced the balanced scorecard approach, which identifies four dimensions of performance: financial, community, internal business processes, and innovation and learning. Financial management tracks services to ensure that they are providing the best value for the money. Community management monitors how the community perceives the government both as citizens and as customers of municipal services. Internal business processes considers the need for cost reduction and the need to deliver high quality products. Lastly, tracking the government's ability to learn and innovate ensures that it is moving forward and adapting to the changing environment.[116]

Public administration literature identifies several important ingredients in having an effective performance and monitoring mechanism, starting with having strong leadership and clear purpose. Strong leadership

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[115] David N. Ammons and William C. Rivenbark, "Factors Influencing the Use of Performance Data to Improve Municipal Services: Evidence from the North Carolina Benchmarking Project," *Public Administration Review* 68, no. 2 (March 1, 2008): 304–18, doi:10.1111/j.1540-6210.2007.00864.x; Carmine Bianchi and William C. Rivenbark, "A Comparative Analysis of Performance Management Systems," *Public Performance & Management Review* 35, no. 3 (March 1, 2012): 509–26, doi:10.2753/PMR1530-9576350307.

[116] Robert S. Kaplan and David Norton, "The Balanced Scorecard: Measures That Drive Performance," *Harvard Business Review* 70, no. 1 (January 1992): 71–79; Louise Kloot and John Martin, "Strategic Performance Management: A Balanced Approach to Performance Management Issues in Local Government," *Management Accounting Research* 11, no. 2 (June 2000): 231–51, doi:10.1006/mare.2000.0130.

through the executive of a city or department, e.g. the mayor, is essential for the program to be implemented effectively and for accountability to occur.[117] The executive has to invest time and energy to convince managers and staff that they are serious about improving the municipal government. A clear purpose and clear goals, e.g. the improvement of the delivery of city services, also are essential to a successful performance monitoring program.[118] The program needs focus, especially in the early stages when people are not familiar with the program. Other ingredients to an effective performance and monitoring mechanism includes having a consistent framework across different agencies or departments [119], regularly reviewing performance data with managers who are responsible for them[120], working collaboratively with external partners including communities[121], and building up rich data sources.[122]

 The City of San Francisco Controller's Office published a guide for developing an effective performance management system based on the experience of the San Francisco Department of Public Works. The report describes the process the Office uses when it is working with city departments to develop measures. First, the department has to clearly identify its mission while assessing customer needs and priorities. Based on its mission, the department will develop more specific goals to address those needs. Then individual performance measures can be identified for each goal. Once the measures are in place, the department can collect and analyze data for each of the performance measures. The results are then reported regularly, within the department, with the rest of the city, and possibly with the public. Based on those results, programs can be redesigned and resources reallocated to where they are needed most. The measures should also be refined over time, balancing the needs for constancy and comparability. The

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[117] Robert D Behn, "What All Mayors Would like to Know about Baltimore's CitiStat Performance Strategy," *Washington, DC: IBM Center for the Business of Government*, 2007, http://www.web.pdx.edu/~stipakb/download/PerfMeasures/CitiStatPerformanceStrategy.pdf; Michael Meyer, "Use of Performance Measures for Surface Transportation in Different Institutional and Cultural Contexts: Cases of Australia, Japan, and New Zealand," *Transportation Research Record: Journal of the Transportation Research Board* 1924 (January 1, 2005): 163–74, doi:10.3141/1924-21; Donald P. Moynihan, "Managing for Results in State Government: Evaluating a Decade of Reform," *Public Administration Review* 66, no. 1 (January 1, 2006): 77–89, doi:10.1111/j.1540-6210.2006.00557.x; Bianchi and Rivenbark, "A Comparative Analysis of Performance Management Systems"; Bruce Nye, "Bruce Nye: CitiStat Is The Best Thing That Could Happen to Government Accountability in Oakland. But Not Now.," *A Better Oakland*, March 2010, http://abetteroakland.com/bruce-nye-citistat-is-the-best-thing-that-could-happen-to-government-accountability-in-oakland-but-not-now/2010-03-26; TRB, "2011 Performance Measurement of Transportation Systems: Summary of the Fourth International Conference" (TRB, 2013), http://www.trb.org/Main/Blurbs/169214.aspx.
[118] Behn, "What All Mayors Would like to Know about Baltimore's CitiStat Performance Strategy."
[119] Meyer, "Use of Performance Measures for Surface Transportation in Different Institutional and Cultural Contexts"; Bianchi and Rivenbark, "A Comparative Analysis of Performance Management Systems."
[120] Theodore H. Poister, "The Future of Strategic Planning in the Public Sector: Linking Strategic Management and Performance," *Public Administration Review* 70 (December 1, 2010): s246–54, doi:10.1111/j.1540-6210.2010.02284.x; Behn, "What All Mayors Would like to Know about Baltimore's CitiStat Performance Strategy."
[121] Poister, "The Future of Strategic Planning in the Public Sector."
[122] Meyer, "Use of Performance Measures for Surface Transportation in Different Institutional and Cultural Contexts."

performance data should also be audited periodically to ensure quality.[123] This process is depicted in Figure 28.
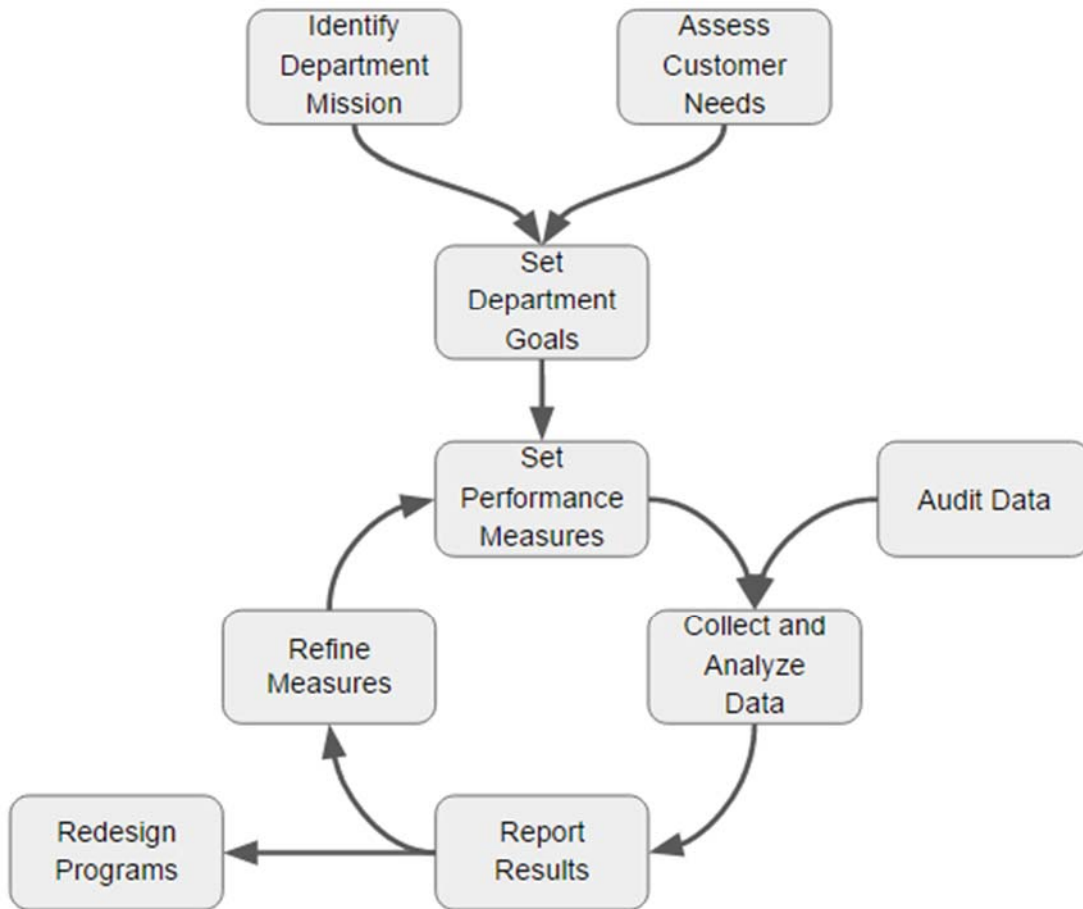


*Figure 28: Performance measure development process based on the San Francisco DPW's experiences[124]*

Performance monitoring programs also face challenges. Some programs, such as CitiStat in Baltimore and results-based budgeting in North Carolina, have resulted in difficult decisions that are unpopular with managers, city workers, or labor unions, such as transforming organizational structures and cultures or aligning compensation with performance.[125] The executive needs to show strong political leadership and determination in the face of initial resistance to ensure the survival of the program. However, the executive cannot lead by fiat. She needs to cultivate personal relationships while motivating the staff by convincing them of the program's benefits so that they can also buy-in to the program. In addition, as cities move toward sharing these datasets with the public, the municipality may run the risk of compromising the

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[123] San Francisco Controller's Office, "Guide to Good Measures" (City and County of San Francisco, April 2015), http://www.sfcontroller.org/Modules/ShowDocument.aspx?documentid=6413.
[124] Ibid.
[125] Behn, "What All Mayors Would like to Know about Baltimore's CitiStat Performance Strategy"; Poister, "The Future of Strategic Planning in the Public Sector"; Bianchi and Rivenbark, "A Comparative Analysis of Performance Management Systems."

privacy of individuals who will have personal identifiable information recorded in those databases. The municipality must de-identify information before releasing datasets. For example, by aggregating data based on neighborhoods rather than releasing the exact addresses of reported incidents.[126] The literature on performance management for both the private and public sectors emphasize the value of maintaining legacy systems to build trust in new capabilities and not force new systems at an overwhelming pace.[127] The burden that a new program imposes on current staff, such as learning new analysis techniques and the additional time spent reporting, must be taken into account during the development process to reduce staff resistance.

One larger difficulty to overcome is the notion that the performance management is just a fad that will fade away with changes in administration. One highly cited performance monitoring programs is Baltimore's CitiStat, implemented by the city's mayor Martin O'Malley in 2000 as a leadership strategy to improve the performance of public agencies. A key feature of the program was biweekly meetings where department directors went before the mayor and top city officials to report on the status of department programs. Funded as a part of the mayor's office on an annual budget of $500,000, it was credited with saving the city $350 million in its first seven years of existence, largely through a reduction in staff absenteeism, overtime compensation, and better-managed contracts. It also drastically increased the number of potholes the city filled, with the city achieving its target of filling a pothole within two days after it was reported 95% of the time.[128] Many cities around the U.S. have emulated the program, including San Francisco, Atlanta, St. Louis, Cincinnati, and Kansas City, Missouri.[129] However, the original Baltimore program is now in trouble and the current mayor has stopped attending many CitiStat meetings. In the last two years, the office failed to publish any department reports, canceled one-third of its meetings, ceased its biweekly monitoring of many city priorities, and many of the main actors running CitiStat have moved to the state of Maryland and to other cities.[130] To ensure the survival of performance monitoring programs beyond changes in mayoral administrations, public administration scholars suggest several key ways in which performance measurement can evolved into a city's standard practice. The staff should be engaged in the process so they truly become part of the program; these staff will be the ones to see the effort to completion, so they need to buy into performance management. In addition, the literature states that clearly articulating positive benefits is important to convincing both city staff and citizens. For example, when meaningful targets are met, however small, they should be celebrated. Presenting measurable

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[126] Whittington et al., "Push, Pull, and Spill."

[127] Mahmoud R. Halfawy, "Municipal Information Models and Federated Software Architecture for Implementing Integrated Infrastructure Management Environments," *Automation in Construction*, Building information modeling and interoperability, 19, no. 4 (July 2010): 433–46, doi:10.1016/j.autcon.2009.11.013.

[128] Ammons and Rivenbark, "Factors Influencing the Use of Performance Data to Improve Municipal Services"; Behn, "What All Mayors Would like to Know about Baltimore's CitiStat Performance Strategy."

[129] Poister, "The Future of Strategic Planning in the Public Sector."

[130] Doug Donovan and Mark Puente, "Mayor Replacing CitiStat Chief Grimes," *Baltimoresun.com*, accessed November 28, 2015, http://www.baltimoresun.com/news/maryland/politics/bs-md-mark-grimes-leaving-20150819-story.html.

benefits of the program to the public and having the mayor espouse the merits of the program ensures that the electorate will support continuing the program even after changes in administration.[131]

Moving from the structure of performance management systems to specific measures, the literature elaborates on the distinction between the two main types of performance measures, *output* versus *outcome* measures. The tangible products of the agency, such as the number of potholes filled, are outputs of the agency. The results achieved, such as reductions in congestion, are the outcomes that impact the general public.[132] Output data are easier to measure and thus more readily available. However, in the field of transportation planning and engineering, researchers argue that agencies should strive to collect and improve outcome measures if possible; agencies who are satisfied with collecting and improving only output measures might become too focused on the product of the city and the measures themselves. Ultimately, the goal of transportation agencies is to increase transportation system performance, not to just build roads and stations.[133]

While developing and evaluating the measures, the Office should consider several important criteria. The measures should also be well defined, easily understood, and clear on what is to be achieved. When starting the performance management program, the first measurements should be challenging but realistic, so that the measurements can be made and targets can be met. In the long run, the data has to be kept accurate and up to date, otherwise the measures would lose their meaning.[134]

## 5.5   Case Studies and Current Trends

Based on existing academic literature and reports, 218 Consultants reviewed public reporting for 11 agencies, shown in Figure 29, to bring together metrics for the Oakland DOT to consider. The team also contacted several of those agencies to learn about their work, including the development process and use of their performance management systems.

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[131] Nick Lovegrove, Garrett Ulosevich, and Blair Warner, "Achieving Sustainable Transformation in the Federal Governement," Making It Work in Government (McKinsey & Company, July 2010), http://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/public%20sector/pdfs/mcg/making_it_work_in_government.ashx; Jason Piatt, "Five Steps to Making Performance Improvement Stick," *IndustryWeek*, October 22, 2013, http://www.industryweek.com/change-management/five-steps-making-performance-improvement-stick.
[132] Meyer, "Use of Performance Measures for Surface Transportation in Different Institutional and Cultural Contexts"; John Falcocchio, "Performance Measures for Evaluating Transportation Systems: Stakeholder Perspective," *Transportation Research Record: Journal of the Transportation Research Board* 1895 (January 1, 2004): 220–27, doi:10.3141/1895-27; Ammons and Rivenbark, "Factors Influencing the Use of Performance Data to Improve Municipal Services"; TRB, "2015 TRB's 5th International Conference on Transportation Systems Performance Measurement and Data," 2015, http://www.trb.org/Main/Blurbs/169382.aspx.
[133] Meyer, "Use of Performance Measures for Surface Transportation in Different Institutional and Cultural Contexts"; Falcocchio, "Performance Measures for Evaluating Transportation Systems"; Behn, "What All Mayors Would like to Know about Baltimore's CitiStat Performance Strategy."
[134] San Francisco Controller's Office, "Guide to Good Measures."
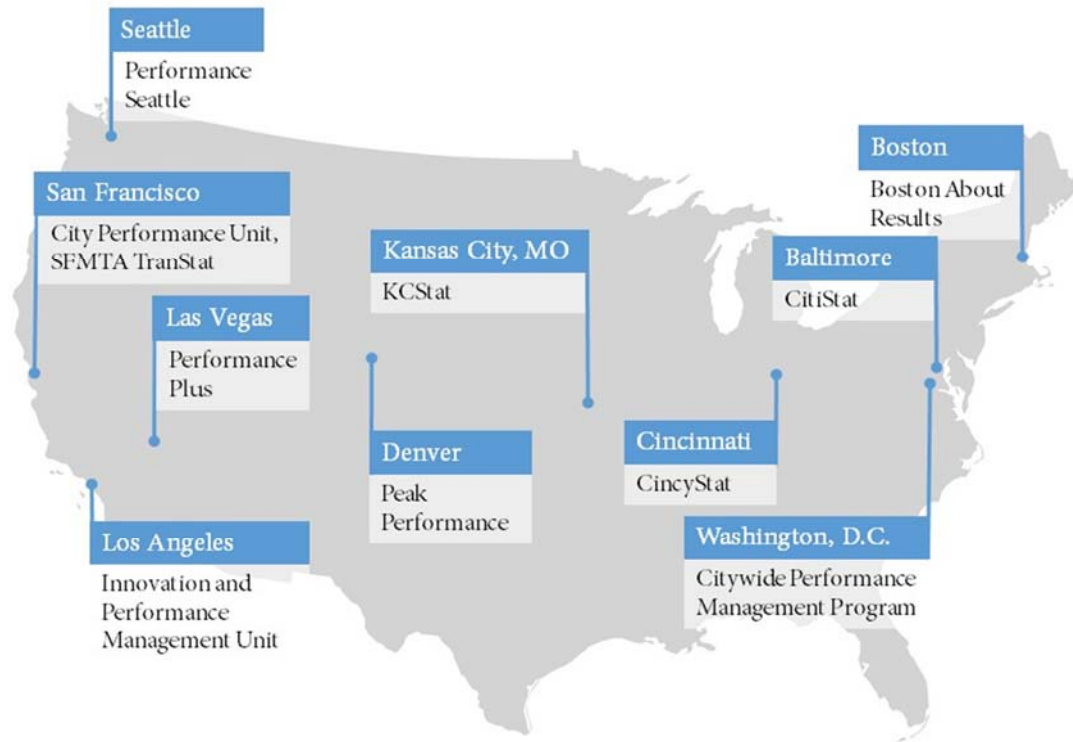
*Figure 29: Map of cities reviewed and in some cases contacted to bring together best practice methods and possible transportation metrics.*

### 5.5.1  Performance Metrics for Transportation

Table 12 shows examples of metric categories from the agencies in Figure 29, along with possible transportation metrics. These categories and metrics provide a representative sample across:

- **Timescales**: many customer service metrics can be calculated weekly, while mode shift is typically counted only a few times per year;
- **Internal and external focus:** pavement condition is highly visible externally, while employee performance review completion is much less so;
- **Modes:** many metrics think beyond car use to the broader transportation system; and
- **Possible transportation functions**: depending on the responsibilities of the Oakland DOT, the relevant metrics could be very different.

*Table 12: Sample metric categories and specific examples of metrics. Oakland DPW is included to show metrics that are already calculated within the city[135]*

| Category | Examples | Cities/Agencies |
|---|---|---|
| **Customer Service** | % Requests closed within target time (various request types and timeframes) | Oakland DPW; Cincinnati; Seattle; Boston; Washington, D.C. |
| **Equity** | Number of students in School Transit Subsidy Program | Washington, D.C. |
| **Mode Shift** | Non-private auto mode share | Los Angeles; Seattle; SFMTA |
| **Parking** | Parking meter uptime | Los Angeles; Washington, D.C. |
| **Project/Cost Management** | Work completed within 10% of estimated cost | Washington, D.C. |
| **Project/Cost Management** | Contracts completed within 10% of total contract period | Cincinnati |
| **Safety** | Traffic fatalities | Seattle; Washington, D.C. |
| **Safety** | Workplace injuries | SFMTA |
| **Street Paving and Reconstruction** | Pavement condition | Los Angeles; Seattle; Washington, D.C. |
| **Transportation Strategy and Plan** | Plan reviews completed on time | Oakland DPW; Cincinnati |
| **Workforce/HR** | Employee satisfaction | SFMTA |
| **Workforce/HR** | % Completion of employee reviews and performance plans | SFMTA |

A list of the Oakland Department of Public Works' internal performance measures is available in Appendix C. Many transportation agencies track response times to requests, including Oakland's DPW. In one example highlighted by San Francisco's DPW, customer responsiveness metrics were even used to address equity concerns: one area experienced slower response times compared to all other areas, resulting in a reallocation of resources to balance outcomes.[136] While the metric was related to dumping rather than

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[135] City of Seattle, "Open Performance Portal," *City of Seattle – Open Performance Portal*, accessed December 8, 2015, https://performance.seattle.gov/; City of Boston, "Boston About Results," *Boston About Results*, accessed December 9, 2015, http://www.cityofboston.gov/bar/scorecard/reader.html; Washington, D.C., "Welcome to Track DC," *Track DC*, accessed December 9, 2015, http://dc.gov/trackdc; City of Los Angeles, "Dashboard," *Los Angeles Sustainable City pLAn*, accessed December 9, 2015, https://performance.lacity.org/; San Francisco Municipal Transportation Agency, "Performance Metrics," Text, *SFMTA*, (June 1, 2015), https://www.sfmta.com/about-sfmta/reports/performance-metrics; City of Cincinnati, "Office of Performance and Data Analytics – Office of the Manager," *Office of Performance and Data Analytics*, accessed December 9, 2015, http://www.cincinnati-oh.gov/manager/opda/.

[136] San Francisco Controller's Office, "Guide to Good Measures."

transportation, it serves as a useful example of how performance measurement and resource allocation can work towards improving equity.

For the purposes of this report, most metrics related to transit, such as on-time performance, have been omitted because these metrics were only reported in agencies that operate transit. However, this does not mean agencies that don't operate transit ignore transit outcomes within their cities. Seattle includes a metric for volume of transit trips within the city, and Washington, D.C. reports on the number of students enrolled in their School Transit Subsidy program. These illustrate areas where the DOT can work with external agencies such as AC Transit to effectively monitor outcomes for all transportation modes within the city. Transit metrics, in addition to metrics that Oakland's DPW is already reporting such as customer responsiveness, plan review completion, and paving volumes, demonstrate the wide range of factors to consider when evaluating the success of the DOT. The metrics presented in Table 12 will inform the team's recommendations for the Department of Transportation, which has the opportunity to consider a variety of metrics that are not being reported by the City.

## Case Study 3    Seattle, Washington

The City of Seattle succeeded in substantially raising future transportation revenues this year, and also demonstrates how a DOT can communicate an integrated look at mobility to the public. Voters approved Proposition 1, commonly referred to as "Let's Move Seattle," during the November 3, 2015 election. Let's Move Seattle is a levy on property taxes for nine years and is expected to generate $930 million, replacing the previous levy which was valued at $350 million over nine years.[137] An interviewee within the Mayor's Office discussed how the city's strategy was to first pass a smaller maintenance-focused ballot measure, then monitor the benefits and present them to the public to help pass a larger measure. In addition, the website for the measure states "…Mayor Murray's Move Seattle Strategic Vision lays out specific metrics that will be used to track the Seattle Department of Transportation's progress in fulfilling the core values of the vision to a safe, interconnected, vibrant, affordable, and innovative city. Examples of those metrics include annual rate of pedestrian collisions, percentage of potholes repaired within 3 days, and percentage of destinations within a ¼ mile of frequent transit."[138]

This specifically links performance measures to accountability for the new levy, and as Figure 30 shows, the current Seattle transportation dashboard already includes several of metrics mentioned on the website. The city's transportation metrics span three diverse categories: Mobility, Roads, and Safety. It is helpful to note that like Oakland, which does not operate transit service, King County Transit is separate from the Seattle DOT. Therefore, their "In-City Bus Ridership" metric indicates that the DOT considers promoting transit important even though the Seattle DOT does not directly provide the service. Seattle's transportation metrics would be a good starting point for the new Oakland DOT, and could be similarly linked to future ballot measures for funding.

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[137] "Let's Move Seattle FAQ," *Let's Move Seattle*, accessed December 8, 2015, http://letsmoveseattle.com/faq.
[138] Ibid.

*Figure 30: A snapshot of Seattle's performance management dashboard for transportation[139]*

### 5.5.2  Structuring Performance Management

Based on the cities the team interviewed and existing reports, it is rare for a Department of Transportation to have a performance management team outside of a broader city effort, especially for reporting with a public interface. A local exception to this rule is the SFMTA (Muni), whose program was brought over from the San Francisco DPW by an incoming director. However, as the city transit agency they have larger responsibilities than most city DOTs, so while Oakland could take a similar development path it is probably not the most relevant example. There are three common models for performance management offices within cities: centralized, decentralized, and hybrid.[140] In a centralized model, a central office creates and provides metrics. This is the approach in Cincinnati, where each analyst is responsible for developing and maintaining metrics for certain metrics. In a decentralized model, each department is responsible for creating their own metrics. Denver has small teams for performance management within each

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[139] City of Seattle, "Open Performance Portal."
[140] Emily Robbins and Christiana McFarland, "Performance Management: A Guide for City Leaders" (National League of Cities), accessed December 8, 2015, http://www.nlc.org/Documents/Find%20City%20Solutions/City-Solutions-and-Applied-Research/CSAR%20Performance%20Management%20Report%202014.pdf.

department, with a Peak Performance office that provides regular training for support (personal communication). The hybrid model has some combination of these, so for example the centralized office might have embedded members in each department.[141] In Los Angeles the central office provides strategic planning and "expert consulting," but aspires to have each department manage their own performance in the future. This report presents potential structures for Oakland in the "Recommendations" section, and the City will need to consider factors such as the intended scope of performance management, resource availability, and current skills to determine a path forward.
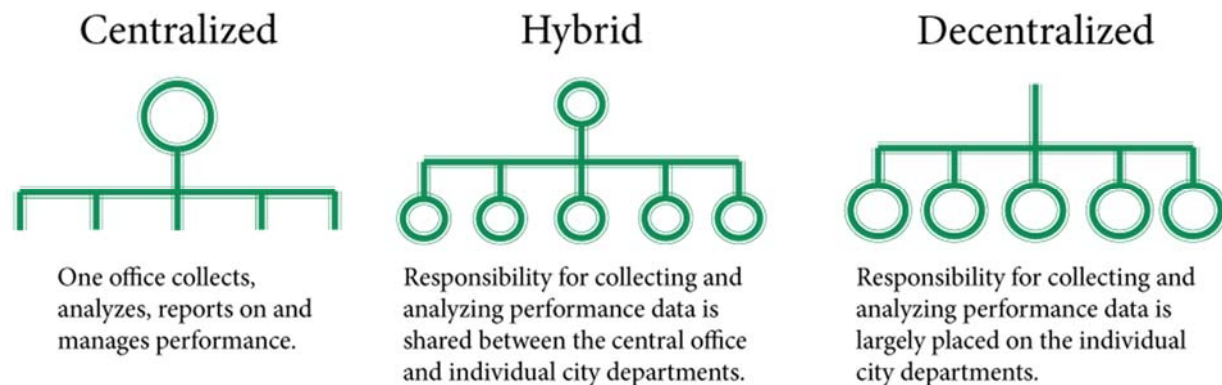


| Centralized | Hybrid | Decentralized |
|---|---|---|
| One office collects, analyzes, reports on and manages performance. | Responsibility for collecting and analyzing performance data is shared between the central office and individual city departments. | Responsibility for collecting and analyzing performance data is largely placed on the individual city departments. |

*Figure 31: Possible performance management structures within cities*

### 5.5.3   Performance Management Challenges

Two challenges in performance management were highlighted during interviews with public agency staff at multiple cities: resistance to metric review meetings; and the need to reduce the number of metrics in high-level reports.

Reviewing department performance can be understandably "uncomfortable by nature," as one interviewee stated, and went on to describe their review meetings as "basically dreaded" when managers are consistently asked to answer for underperformance. Another person from the same agency described the friction from having a separate group within the city measure performance because some of the metrics did not take into account the reality of operations. Recommendations to address this resistance within the literature and from interviews center around two ideas. The first is to have a collaborative metric development process, so that the department and its staff who are to be held accountable to the metrics have a voice in how they are measured. This will also allow staff to provide a perspective on data availability, reliability, and analysis that would support their work. Denver tackles this problem by embedding analysts from the Performance Plus office into the various departments and establishing trust with the department staff. The analysts would then develop metrics that focus on processes the department leaders and staff wants to improve. The second is to set achievable targets, which could be informed in part by a collaborative development process. Unrealistic target setting is very likely to lead to resentment of the performance review process, so it is important to have buy-in from everyone involved.

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[141] Ibid.

Several interviewees also mentioned the need to reduce the number of metrics in reporting, especially for review meetings and the public, to help agencies prioritize their work and manage expectations. In one case, the development process for a list of DOT goals did not go through an effective process of reduction and feasibility analysis. This has resulted in over-promising to stakeholders, and several goals that are not easily measured at this time. Measurement difficulty does not mean that the goals are not worthwhile, but common wisdom is, "if it can't be measured, it can't be managed." Related to information overload, one interviewee commented that reports to leadership should be kept to high-level details to help them address core needs during meetings rather than focus on details. Careful report design, a collaborative goal development process, and an emphasis on feasibility can build support for performance management and lead to an appropriate list of goals. For example, Washington, D.C. shows high-level summaries of how many goals are fully achieved, partially achieved, and not achieved for each department, together with workload measures such as the number of service requests. Seattle and Los Angeles both have dashboards for citywide metrics, including transportation measures. And in Cincinnati, slides posted publicly from their performance review meetings every two weeks indicate that each meeting focuses on a few measures out of the more than 50 that are listed in the Transportation and Engineering Department performance agreement.

## 5.6   Recommendations and Conclusions

Based on the current state of transportation performance management within the City of Oakland and the team's research, this chapter concludes with three important considerations for Oakland and its future DOT:

1.   DOT performance metrics;
2.   Structuring Performance Management within the City; and
3.   Fostering accountability for performance.

### 5.6.1   DOT Performance Metrics

Taking into consideration the criteria for performance measures in the literature, the metrics used by other local governments shown in Table 12, and the DOT focus areas for this report as a whole, the team recommends several transportation metrics that can be implemented for Oakland. These are summarized below in Table 13.

*Table 13: Possible new goals and metrics for Oakland's DOT*

| Potential Goal | Sample Metrics |
| --- | --- |
| **Internal coordination** | Responses to employee survey question such as "I have noticed that communication between leadership and employees has improved" and "Employees in my work unit share job knowledge to solve problems effectively" |
| **Parking** | Parking meter uptime; Parking space occupancy rate |
| **Public responsiveness** | SeeClickFix ticket reopen rate |

| | |
|---|---|
| **Project funding and implementation** | Rate of grant fund usage within grantor target timeframe |
| **Project implementation** | Percent of work completed within 10% of estimates; Percent of work completed within 10% of contract period |
| **Safety** | Road fatalities (all users) |
| **Implement mobility hubs within Oakland** | Number of bike share and car share spaces at hubs; number of shared scooters and electric bicycles in Oakland |
| **Increased bicycling, transit ridership, and car share usage from mobility hubs** | Number of bike and car share trips from mobility hubs; Number of point-to-point car share trips originating near mobility hubs |
| **Socially equitable and environmentally sustainable transportation** | Average number of parking citations by neighborhood; burden of transportation expenses for residents near mobility hubs; neighborhood automobile ownership |

Internal communication and training can be measured through employee surveys, as demonstrated by the SFMTA. It publicly reports a number of employee satisfaction metrics based on an annual survey. Employees indicate their level of agreement with statements such as:

- ▪ "I have noticed that communication between leadership and employees has improved"
- ▪ "Employees in my work unit share job knowledge to solve problems effectively;" and
- ▪ "I have the knowledge and tools to do my job." [142]

A similar survey within the Oakland DOT could gauge the results of programs designed to promote better internal coordination and knowledge transfer.

The Public Interface chapter reported that SeeClickFix tickets are frequently reopened because residents do not consider an issue to be resolved, so it may be helpful to analyze how often this occurs. The department could also supplement existing DPW public engagement metrics by monitoring equity of service, as San Francisco's DPW did for street cleaning. The DOT could measure the average response times to certain types of public requests by neighborhood, such as street cleaning or potholes, and focus on any areas of the City where it has previously lagged.

Within project funding, DPW is already tracking the number of applications submitted for transportation and infrastructure funds, and the percentage of applications that are awarded. However, the team heard from interviews with funders that implementation capacity and timely use of grants for transportation are concerns for the City of Oakland. The team has not seen any cities publicly reporting metrics for timely use of grants, but the DOT should consider internal measures to address this concern. Also related to project delivery, the DOT could monitor the percent of work completed within 10% of estimates, based on metrics from Washington, D.C. and the San Francisco DPW; and within 10% of the contract period, similar to Cincinnati.

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[142] San Francisco Municipal Transportation Agency, "Performance Metrics."

Applying performance management to the mobility hubs concept within the Mobility Hubs Technical Report, many measures can be developed to assess the hubs' effectiveness as individual hubs, systemwide, and longer term as an integrated system once fully implemented. The goal of the mobility hubs is to improve first- and last-mile access to destinations from existing public transit facilities. To that end, bike share stations, bicycle lanes, parking for shuttles, car share stations, and taxi/transportation network company (TNC, e.g. Uber and Lyft) stands will need to be built. Initially, output measures such as the number of shared bicycles, number of bicycle lane miles added, and number of car share spots can be used to monitor progress. Once the initial hubs are built, outcome measures such as the number of bicycle rides, number of car share rides, number of transfers from transit, and commute times can be monitored. Ideally, metrics based on data feed from bike share companies and TNCs can also be incorporated. Adjustments to the hubs can be made based on feedback from these metrics. Ultimately, travel times and accessibility should be measured to assess the effectiveness of mobility hubs in achieving the desired outcomes.

In order for some of these metrics to be implemented, a large data collection effort would be required. During the design of the mobility hubs suitability analysis, the team found that the city lacked some key data needed in mobility hub location selection. Specifically, they were unable to obtain detailed data on observed origin and destination trips, street curb space utilization and designation, taxi stand locations, detailed street parking occupancy rates, and information on private parking lots and garages (see Mobility Hubs Technical Report). Oakland does collect geocoded parking meter payment data and parking citation data, but these are currently unused by the city (personal communication). Ultimately, before mobility hubs are planned and constructed, the city has to start collecting and analyzing the data needed to support both the project and future performance metrics.

## 5.6.2   Structuring Performance Management

Given the national trend towards performance management at all levels of government, one of the core recommendations of this chapter is that the City of Oakland should create an Office of Performance Management. This would promote a consistent approach to performance accountability across the City, and demonstrate a commitment to transparency both internally and to the public. While an Office of Performance Management would extend beyond the Department of Transportation, the DOT would be an ideal first pilot case in city-wide metric development. Since the Department of Public Works already has a Business & Information Analysis Division, an Office of Performance Management could build off of its existing work. This does not mean that the Department of Public Works should not have staff for performance management, since it has reporting needs that extend beyond transportation. Instead, performance management in Oakland could begin as a hybrid model, with staff largely in the Office of Performance Management and some staff remaining in Public Works. For transportation, the new office could either use some metric reporting the existing group undertakes, or build off the existing group's metrics to develop new tools that would assist the Department of Transportation meet performance goals. The City could expand the program by building capacity in a centralized office, or continue the hybrid approach from the DOT and DPW by providing guidance for standardization and training support for staff in additional departments. This would allow the centralized office to improve data collection, processing, and reporting abilities across the City, without requiring departments to rely exclusively on

that office for customized reports. The team sees either a centralized or hybrid approach as viable within Oakland, depending on an internal evaluation of factors such as new staffing needs, but considers the creation of an Office of Performance Management as critical to elevating outcomes-focused work in the new DOT and City more broadly.

### 5.6.3  Fostering Accountability for Performance

The literature on performance management emphasizes the importance of creating a system of accountability, usually through meeting monthly or even every two weeks to discuss performance (citations for Cincinnati, Baltimore). This literature also highlights that department leadership should attend and actively participate at these meetings, and that representatives from supporting departments such as Finance, Contracts, Human Resources, and Communications also should attend often to collaborate with colleagues for solutions.

The Department of Transportation has an opportunity to demonstrate innovative practices for the City of Oakland by improving accountability and internal coordination through regular, collaborative, and solutions-oriented meetings for performance management. The team recommends performance management meetings with every two weeks or monthly for the Department of Transportation, including the top leadership within the department and representatives of appropriate supporting departments.

In summary, the existing performance management efforts of the Oakland Department of Public Works provide a foundation for the Department of Transportation on which to draw to develop a comprehensive set of transportation metrics for the City. The new department can also prompt a broader focus on performance management within the City of Oakland by helping to develop an Office of Performance Management. This office would improve data analysis and performance management throughout the City by building these skills in a dedicated team that could then collaborate with other groups. Incorporating the best practices outlined within this chapter will result in an accountable Department of Transportation, with staff, the public, partner agencies and organizations better able to see tangible results of its work and more engaged in performance improvement.

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# Appendix A  OBAG selection criteria

The project selection criteria will include criteria used in past Alameda CTC funding cycles as well as new requirements that are mandated by the OBAG program. Projects that meet all of the OBAG screening criteria will be prioritized for OBAG funding based on the factors listed below.

| Index | Draft OBAG Selection / Scoring Criteria | Proposed Weight |
|---|---|---|
| 1 | Transportation Project Readiness<br>■ Funding plan, budget and schedule<br>■ Implementation issues<br>■ Agency governing body approvals<br>■ Local community support<br>■ Coordination with partners<br>■ Identified stakeholders | 25 |
| 2 | Transportation Project is well-defined and results in a usable segment<br>■ Defined scope<br>■ Useable segment.<br>■ Project study report / equivalent scoping document | 10 |
| 3 | Transportation project need / benefit / effectiveness (includes Safety)<br>■ Defined project need<br>■ Defined benefit<br>■ Defined safety and/or security benefits | 15 |
| 4 | PDA Supportive Investments (Includes Proximate Access)<br>■ Transportation project supports connectivity to jobs/transit centers/activity centers for a PDA<br>■ Transportation Project provides multi modal travel options | 10 |
| 5 | Transportation Investment addressing / implementing planned vision of PDA<br>■ PDA transportation facility will be X% complete with project | 5 |
| 6 | Sustainability (Ownership / Lifecycle / Maintenance)<br>■ Identify funding and responsible agency for maintaining the transportation project<br>■ Transportation Project identified in a long term development plan | 5 |
| 7 | Matching Funds<br>■ Direct Project Matching above Minimum required Local Match | 5 |
| 8 | *Project consistent with regional TLC design guidelines or design that encourages multi-modal access and located in high impact project areas in regards to PDA development and the SCS. PDA Evaluation Transportation projects must support an Active PDA and will be further evaluated in the following 5 criteria:* | |
| 8a | Housing Growth<br>■ Projected growth of Housing Units in PDA | 3 |
| 8b | Jobs Growth<br>■ Projected growth of Jobs in PDA | 3 |

| Index | Draft OBAG Selection / Scoring Criteria | Proposed Weight |
|---|---|---|
| 8c | Improved transportation choices for all income levels (reduces VMT), proximity to quality transit access, with an emphasis on connectivity (including safety, lighting, etc.)<br>▪ Proximity of alternative transportation mode project to a major transit or high quality transit corridor stop | 3 |
| 8d | PDA parking management and pricing policies<br>▪ Parking Policies<br>▪ Other TDM strategies | 3 |
| 8e | PDA affordable housing preservation and creation strategies<br>▪ Inclusionary zoning ordinance or in-lieu fee<br>▪ Land banking<br>▪ Housing trust fund<br>▪ Fast-track permitting for affordable housing<br>▪ Reduced, deferred or waived fees for affordable housing<br>▪ Condo conversion ordinance regulating the conversion of<br>▪ apartments to condos<br>▪ SRO conversion ordinance<br>▪ Demolition of residential structures ordinance<br>▪ Rent control<br>▪ Just cause eviction ordinance<br>▪ Others | 3 |
| 9 | Communities of Concern (C.O.C.)<br>▪ Transportation project mitigates the transportation need of the C.O.C.<br>▪ Relevant planning effort documentation | 5 |
| 10 | Freight and Emissions<br>▪ Project in PDA that overlaps or is collocated with populations exposed to outdoor toxic air contaminants as identified in the Air District's Community Air Risk Evaluation (CARE) Program or is in the vicinity of a major freight corridor | 5 |
| | **Total** | **100** |

# Appendix B   West Hollywood Social Media Policy

CITY OF WEST HOLLYWOOD
POLICY AND PROCEDURE

Authority: Manager, Communications Division

Effective: July 1, 2011

Revised: June, 12, 2015

CITY COUNCIL AGENDA PREPARATION

1.   Purpose

This Social Media Policy ("Policy") establishes guidelines for the establishment and use by the City of West Hollywood ("City") of social media sites as a means of conveying information to members of the public.

The intended purpose of City social media sites is to disseminate information from the City about the City's mission, meetings, activities, and current issues to members of the public.

The City has an overriding interest and expectation in protecting the integrity of the information posted on its social media sites and the content that is attributed to the City and its officials.

2.   Definitions

"Social media sites" means content created by individuals, using accessible, expandable, and upgradable publishing technologies, through and on the internet. Examples of social media include, but are not limited to, Facebook, Twitter, Blogs, RSS, YouTube, LinkedIn, Delicious, and Flickr.

"City social media sites" means social media sites which the City establishes and maintains, and over which it has control over all postings , except for advertisements or hyperlinks by the social media site's owners, vendors, or partners. City social media sites shall supplement, and not replace, the City's required notices and standard methods of communication.

"Posts" or "postings" means information, articles, pictures, videos or any other form of communication posted on a City social media site.

3.   General Policy
    3.1.   The City's official website at www.weho.org (or any domain owned by the City) will remain the City's primary means of internet communication.
    3.2.   The establishment of City social media sites is subject to approval by the Communications Manager or his/her designee. Upon approval, City social media sites shall bear the name and/or official logo of the City.
    3.3.   Content on City social media sites is subject to oversight by the City's Communications Division.
    3.4.   City social media sites shall clearly state that such sites are maintained by the City and that the sites comply with the City's Social Media Policy.

3.5.  City social media sites shall link back to the City's official website for forms, documents, online services and other information necessary to conduct business with the City whenever possible.

3.6.  The City's Communications Division shall monitor content on City social media sites to ensure adherence to both the City's Social Media Policy and the interest and goals of the City.

3.7.  City social media sites shall be managed consistent with the Brown Act. Members of the City Council, Commissions and/or Boards shall not respond to, "like", "share", retweet or otherwise participate in any published postings, or use the site or any form of electronic communication to respond to, blog or engage in serial meetings, or otherwise discuss, deliberate, or express opinions on any issue within the subject matter jurisdiction of the body.

3.8.  The City reserves the right to terminate any City social media site at any time without notice.

3.9.  City social media sites shall comply with usage rules and regulations required by the site provider, including privacy policies.

3.10. The City's Social Media Policy shall be displayed to users or made available by hyperlink.

3.11. All City social media sites shall adhere to applicable federal, state and local laws, regulations and policies.

3.12. City social media sites are subject to the California Public Records Act. Any content maintained on a City social media site that is related to City business, including a list of subscribers, posted communication, and communication submitted for posting, may be considered a public record and subject to public disclosure.

3.13. Employees representing the City on City social media sites shall conduct themselves at all times as a professional representative of the City and in accordance with all City policies.

3.14. All City social media sites shall utilize authorized City contact information for account set-up, monitoring and access. The use of personal email accounts or phone numbers by any City employee is not allowed for the purpose of setting-up, monitoring, or accessing a City social media site.

3.15. City social media sites may contain content, including but not limited to, advertisements or hyperlinks over which the City has no control. The City does not endorse any hyperlink or advertisement placed on City social media sites by the social media site's owners, vendors, or partners.

3.16. The City reserves the right to change, modify, or amend all or part of this policy at any time.

4.  Content Guidelines

4.1.  The content of City social media sites should only pertain to City-sponsored or City-endorsed programs, services, and events. Content includes, but is not limited to, information, photographs, videos, and hyperlinks.

4.2.  Content posted to the City's social media sites must contain hyperlinks directing users back to the City's official website for in-depth information, forms, documents or online services necessary to conduct business with the City of West Hollywood, whenever possible.

4.3.  The City shall have full permission or rights to any content posted by the City, including photographs and videos.

4.4.  Postings shall be made during normal business hours. After-hours or weekend postings shall only be made with approval of the City's Communications Manager or his/her designee.

4.5.  Any employee authorized to post items on any of the City's social media sites shall review, be familiar with, and comply with the social media site's use policies and terms and conditions.

4.6.  Any employee authorized to post items on any of the City's social media sites shall not express his or her own personal views or concerns through such postings. Instead, postings on any of the City's social media sites by an authorized City employee shall only reflect the views of the City.

4.7.  Postings must contain information that is freely available to the public and not be confidential as defined by any City policy or state or federal law.

4.8.  Postings may NOT contain any personal information, except for the names of employees whose job duties include being available for contact by the public.

4.9.  Postings to City social media sites shall NOT contain any of the following:

    4.9.1. Comments that are not topically related to the particular posting being commented upon;

    4.9.2. Comments in support of, or opposition to, political campaigns, candidates or ballot measures;

    4.9.3. Profane language or content;

    4.9.4. Content that promotes, fosters, or perpetuates discrimination on the basis of race, creed, color, age, religion, gender, marital status, or status with regard to public assistance, national origin, physical or mental disability or sexual orientation, as well as any other category protected by federal, state, or local laws;

    4.9.5. Sexual content or links to sexual content;

    4.9.6. Solicitations of commerce;

    4.9.7. Conduct or encouragement of illegal activity;

    4.9.8. Information that may tend to compromise the safety or security of the public or public systems; or

    4.9.9. Content that violates a legal ownership interest of any other party.

4.10. These guidelines shall be displayed to users or made available by hyperlink on all City social media sites. Any content removed based on these guidelines must be retained, including the time, date and identity of the poster, when available.

4.11. The City reserves the right to implement or remove any functionality of its social media sites, when deemed appropriate by the Communications Manager or his/her designee. This includes, but is not limited to, information, articles, pictures, videos or any other form of communication that is posted on a City social media site.

4.12. Except as expressly provided in this Policy, accessing any social media site shall comply with all applicable City policies pertaining to communications and the use of the internet by employees, including email content.

4.13. All of the content on City social media sites is subject to oversight by the City's Communications Division.

## Appendix C  Oakland Department of Public Works Transportation Metrics

The following table shows the majority of transportation-related metrics currently tracked by the Oakland Department of Public Works. Some metrics, such as "Complete 50 infrastructure development work orders" under Project Delivery, cover more than transportation, while others within the public right of way, such as landscaping maintenance, have been omitted.

*Source: Oakland Department of Public Works internal document*

| Working Group | Metric |
|---|---|
| Multiple | Request Received |
| Multiple | Requests Closed |
| Multiple | Average Business Days to Request Close |
| Multiple | Unresolved Requests Over 30* Calendar Days Old |
| Multiple | Average Age of Unresolved Service Requests |
| Multiple | Unresolved Priority 1 Requests Over 30 Days Old |
| Streets and Sidewalk Management & Maintenance | Unresolved Pothole Service Requests Over 30 Days Old |
| Streets and Sidewalk Management & Maintenance | Complete base repair for 10 locations per year, providing longer-term fix for potholes |
| Streets and Sidewalk Management & Maintenance | Mill and fill 10 City blocks per year, providing longer-term fix for potholes |
| Streets and Sidewalk Management & Maintenance | Square feet milled and filled |
| Streets and Sidewalk Management & Maintenance | Patch 7,000 potholes per year (including "blitz"), providing shorter-term fix |
| Streets and Sidewalk Management & Maintenance | Seal cracks in 50 City blocks per year |
| Streets and Sidewalk Management & Maintenance | Repair 600 linear feet of curb and gutter per year |
| Streets and Sidewalk Management & Maintenance | Perform 10 linear miles of mechanical gutter cleaning per year |
| Streets and Sidewalk Management & Maintenance | Fix 300 other street defects per year |
| Streets and Sidewalk Management & Maintenance | Perform 50 "make safe" (AC or grinding) sidewalk repairs per year |
| Streets and Sidewalk Management & Maintenance | Repair 70 public defective sidewalk locations per year using City forces |
| Streets and Sidewalk Management & Maintenance | Square feet of public defective sidewalk locations repaired using City forces |
| Streets and Sidewalk Management & Maintenance | Repair 300 defective sidewalk locations using contractors: 200 locations for public damage |

| Working Group | Metric |
| --- | --- |
| Streets and Sidewalk Management & Maintenance | Repair 300 defective sidewalk locations using contractors: 100 locations by Notice to Repair (NTR) for private damage |
| Streets and Sidewalk Management & Maintenance | Complete paving (issue Notice of Substantial Completion) of 10 miles of City streets |
| Streets and Sidewalk Management & Maintenance | Provide staff hours assisting other organizations (not work on streets and sidewalks) |
| Engineering Design | Limit design-related (Type C) change orders for contracts completed to less than 3% of low bid |
| Project Delivery | Limit project management costs for contracts completed to less than 11% of final construction cost |
| Project Delivery | Limit construction management costs for contracts completed to less than 10% of final construction cost |
| Project Delivery | Complete 50 infrastructure development work orders |
| Traffic Signal Management & Maintenance | Perform preventive maintenance on 671 traffic signals per year |
| Traffic Signal Management & Maintenance | Replace 100 traffic signal poles per year |
| Transportation Planning and Funding | Review and comment on 50 plans and/or development submittals |
| Transportation Planning and Funding | Review and comment on 85% of submittals for plans and/or development projects within 10 business days or later agreed-upon deadline |
| Transportation Planning and Funding | Submit or support 12 high quality applications for transportation or infrastructure funds |
| Transportation Planning and Funding | Receive award for 50% of grant applications |
| Transportation Planning and Funding | Complete 100% design of 25 miles of bikeway projects |
| Transportation Planning and Funding | Make 250 in-person contacts with community members on behalf of OPW Bureau of Engineering and Construction |
| Parking Meter Repair | Perform preventive maintenance on 15,000 parking meters which are not referred through Cityworks/City of Oakland personnel per year |
| Parking Meter Repair | Perform maintenance on 8,000 parking meters which are referred through Cityworks/City of |

| Working Group | Metric |
|---|---|
| | Oakland personnel per year |
| Parking Meter Repair | Install 100 missing, new or damaged parking meter poles per year |
| Transportation & Pedestrian Safety | Retime 35 signalized intersections per year (for pedestrians, bicycles, and/or vehicles) |
| Transportation & Pedestrian Safety | Complete traffic signal synchronization along 3 arterial corridors |
| Transportation & Pedestrian Safety | % Requests Resolved within 75 business days |
| Keep Oakland Clean & Beautiful | Sweep parking-controlled street sweeping routes: # of possible routes this month |
| Keep Oakland Clean & Beautiful | Sweep 95% of routes each month |
| Traffic Signs and Markings Management & Maintenance | Repaint traffic markings at 900 locations per year |
| Traffic Signs and Markings Management & Maintenance | Repaint 1,200 painted curb zones per year |
| Traffic Signs and Markings Management & Maintenance | Install or replace 2,000 signs per year |
| Traffic Signs and Markings Management & Maintenance | Number of signs installed/replaced due to graffiti |
| Traffic Signs and Markings Management & Maintenance | Receive 200 work orders that originate from Transportation Services per year |
| Traffic Signs and Markings Management & Maintenance | Resolve 85% of work orders that originate from Transportation Services within 30 calendar days |
| Traffic Signs and Markings Management & Maintenance | Square feet of graffiti abated on signs |

\* *This timeframe target differs by working group.*