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CITY OF SEATTLE
Toward a Resilient Seattle:
Post-Disaster Recovery Plan Framework
January 22, 2013

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INTRODUCTION

Background

Seattle is vulnerable to a number of natural hazards that can profoundly affect the safety of citizens and impact jobs, economic development, natural systems, and livability. A recovery plan can increase the capacity of families, businesses, neighborhoods, community based organizations, and all levels of governments to begin recovery strategies immediately after an event. A recovery plan can capitalize on opportunities to increase resilience during the redevelopment process and include accommodation for those most vulnerable to disaster. The plan can enhance coordination and collaboration across sectors and amongst communities during the recovery process. Early and decisive action developed in advance increases the likelihood that people and businesses will choose to stay in their community after an event rather than relocating to an area unaffected by the disaster.

The Office of Emergency Management was funded by the Seattle City Council in 2012 to begin the development of a Disaster Recovery Plan for Seattle aimed at increasing the community's resilience to the impacts of major disasters. Phase one of the effort is designed to identify major short and long term recovery issues and next-steps towards their resolution; major recovery policy issues; key stakeholders in the community (public, private and non-profit); the form, function and potential representatives for a Community Recovery Team; recommendations for recovery decision-support and decision-making process; City of Seattle roles for effectively interfacing with county, state and federal partners during a major recovery process; and an identification of best practices.

WHAT ARE THE RISKS SEATTLE FACES?

Seattle is 162 years old. It has survived the Great Seattle fire, three earthquakes, The Great Depression, the Boeing Bust, and as 2012 is drawing to a close, the Great Recession.

In 2010 the Office of Emergency Management updated the Seattle Hazard Identification and Vulnerability Analysis (SHIVA) that identifies Seattle's hazards and synthesizes research on them. SHIVA describes how the severity of the hazards could impact Seattle. The major findings were that earthquakes are our biggest threat with winter storms and terrorism close behind.

Seattle will have another large Seattle Fault earthquake. When it happens, it will have a significant impact on the communities of the Central Puget Sound Region, including Seattle. A scenario prepared in 2005 brought to light a number of alarming statistics related to a hypothetical 6.7 magnitude earthquake scenario. For example, the report showed that 1,600 people in the affected area would not survive the next event – eight times the number of deaths from Hurricane Sandy that just devastated the New York and New Jersey coastlines. The toll on infrastructure would be significant: bridges down, pipelines broken, shipping and transportation reduced to a crawl. The report estimated an economic toll (including property damage) at \$33 billion. With half of Seattle's jobs located in liquefaction areas that suffer horizontal acceleration three times the standard used in our building code, damage to buildings (and associated jobs) would be significant. 180,000 buildings would be moderately or severely damaged.

SEATTLE'S DISASTER PREPAREDNESS, RESPONSE, AND MITIGATION

Seattle is a national leader in disaster response planning. A broadly based city team regularly exercises coordination across agencies and governments to direct a unified response to all kinds of natural hazards and threats. Seattle is also a leader in mitigating the impact of known hazards and threats. Investments in our fire stations, community centers and even in single family homes (through the City's Home Retrofit Program) are a great example for others to follow. However, a unified plan for short- and long-term disaster recovery – an all-hazards plan for how to build resilience into current city planning efforts

and adapt to new conditions after a disaster event – does not currently exist. This is the intent of this planning effort – to develop a framework for a disaster recovery plan for the City of Seattle.

WHY RECOVERY PLANS ARE DIFFERENT THAN PREPAREDNESS, RESPONSE, AND MITIGATION

Many assume that recovery from a disaster is predominately the job of government; however, government is only one actor in a cast of many. While government departments and agencies own and actively manage about 30 percent of the city with public roads, rights of way, and parks, the other 70 percent of the city is the province of non-governmental actors. Therefore, just as Seattle has evolved through a blend of public and private investment so too must be the recovery process post disaster. Government, business owners (large and small), investors, community based organizations, neighborhood groups and homeowners must be actively engaged in recovery planning, as all stakeholders will have an active role to play in the recovery of Seattle.

In the immediate aftermath of a disaster, experts use a “command and control” model to rescue the injured, put the fires out, and clear the roads. Recovery is nearly the opposite of command and control. Rather, it is about hundreds and thousands of people, organizations, and businesses making smart and informed decisions that will collectively bring the city back after a major disaster. Anyone who lives, works, or plays in Seattle will be collectively engaged in putting their lives and their economy back into operation. It is the citizens, the community based organizations, and the businesses of Seattle all working in partnership with government entities that will lead and execute a disaster recovery strategy.

CURRENT CITY RECOVERY PLANNING

Current recovery planning efforts have been documented as part of the Seattle Disaster Readiness and Response Plan, which contains 15 “emergency support function (ESF)”

annexes. ESF-14, “Long Term Recovery and Mitigation,” defines short- and long-term recovery, and includes an overview of some of the critical recovery functions such as economic, infrastructure, and human needs recovery. Structural elements of recovery, including key staffing positions, are also defined. In short, this ESF provides a basic operational and procedural outline of recovery actions, but is not intended to be comprehensive in scope and does not address the complete spectrum of needs and issues (as a post-disaster recovery plan might) that will need to be addressed post-disaster.

WHAT GUIDANCE IS THERE FOR DISASTER RECOVERY PLANS?

The Federal Emergency Management Agency (FEMA) published the National Disaster Recovery Framework (NDRF) in September 2011 to describe the concepts and principles of effective federal recovery assistance. It identified coordinating structures to align key roles and responsibilities between local, State, Tribal and Federal governments, the private sector, and non-governmental and community organizations. The NDRF emphasized that “a key element of the process is that the impacted community assumes the leadership in developing recovery priorities and activities that are realistic, well-planned, and clearly communicated.” The NDRF notes that decisions made and priorities set early in the recovery process will have “a cascading effect on the nature and speed of the recovery process.” The NDRF and associated RSFs complement the development of the Seattle Disaster Recovery Plan. Seattle is in a unique position to develop a pre-disaster recovery plan consistent with the NDRF that can serve as a model for other cities both nationally and internationally.

A short list of a few other jurisdictions in the U.S. have developed post-disaster recovery plans. Most of these have been developed in response to a recent disaster; however, there are a small number of plans that have been developed with the intent of being implemented before a disaster takes place. One example of such a plan is Fairfax County, Virginia; the State of Florida has

INTRODUCTION

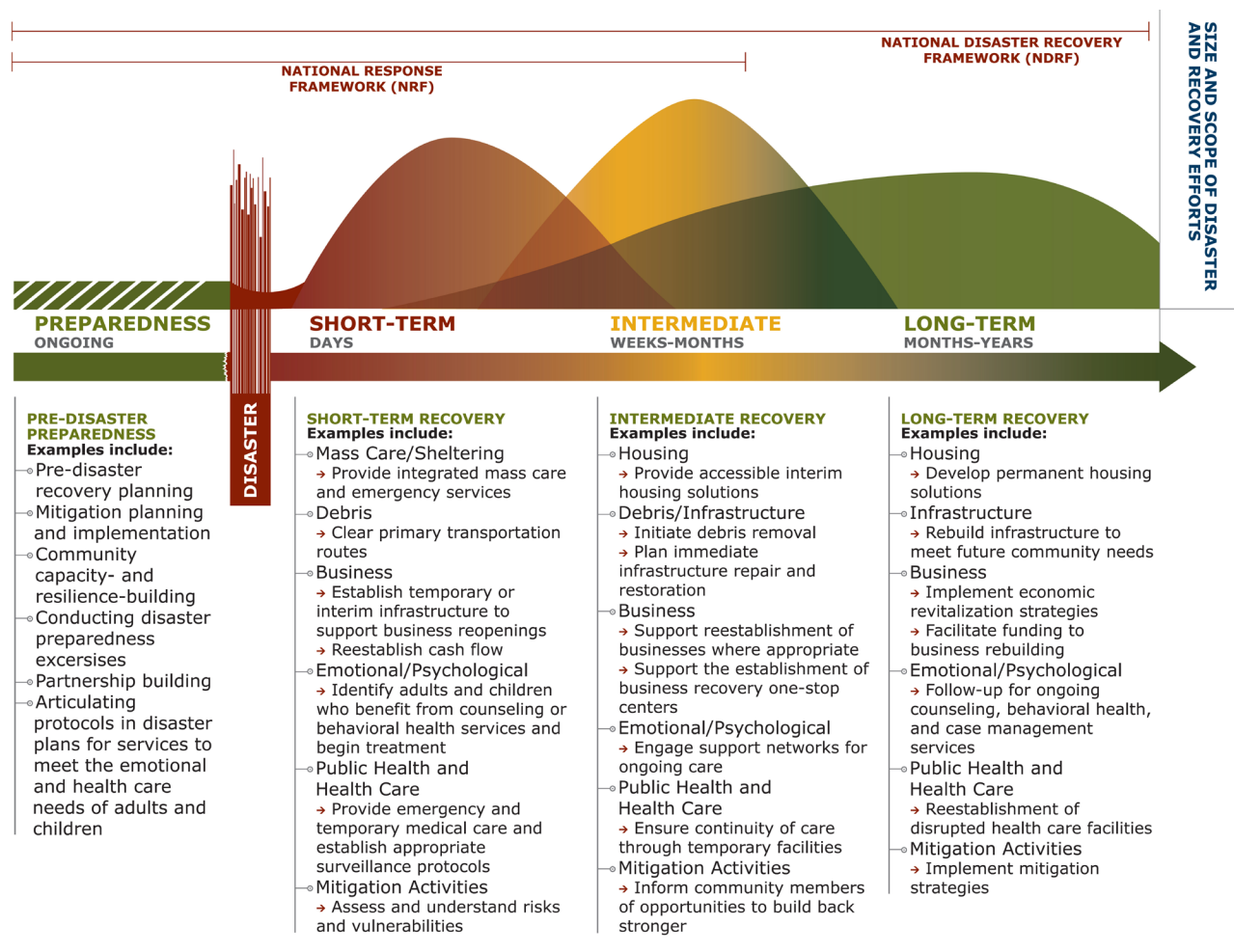


Fig. 1: The National Disaster Recovery Framework (NDRF) "Recovery Continuum" diagram (2011 NDRF, Page 8)

also developed a post-disaster redevelopment guidebook. Other examples of post-disaster recovery plans are included in the case studies section of this document.

A key reference guiding Seattle's recovery planning is the 2011 book "Planning for Post-Disaster Recovery" by Dr. Gavin Smith. He served as an advisor to the Seattle team that prepared this Phase 1 report. Dr. Smith is a Research Professor in the Department of City and Regional Planning at the University of North Carolina at Chapel Hill. Dr. Smith also serves as the Executive Director of the U.S. Department of Homeland Security's Coastal Hazards Center of Excellence and the University of North Carolina's Center for the Study of Natural Hazards and Disasters.

WHO INITIATED PHASE ONE OF THE DISASTER RECOVERY PLAN?

The Office of Emergency Management was granted funding from the Seattle City Council in 2012 to begin the Disaster Recovery planning process. OEM hired the consultants CollinsWoerman to develop Phase 1 and guided the project with input from staff representatives of the City Council, the Seattle City Budget Office, and the Department of Planning and Development.

WHO PARTICIPATED IN PHASE ONE WORKSHOPS?

Three stakeholder workshops and one special meeting with DPD were conducted during Phase One to get a broad perspective. The workshop

participants included representatives from non-profit and community-based organizations, the State of Washington, King County, local institutions and special districts such as the Port of Seattle and the University of Washington, advocacy groups, private business organizations, and FEMA. The broad range of input and diverse perspectives represented at each of these workshops provided the foundation for the plan framework. The participants also highlighted innovative new ways of thinking about recovery planning, and their valuable insights were incorporated into the framework document. A full list of the participants in each workshop is included in the Appendix section of this document.

CORE VALUES

Purpose

The values that form the foundation of the recovery plan were compiled to guide the plan and represent the core planning priorities defined by the community and stakeholders. These draft principles were developed over the course of four focused workshops with key representatives from community organizations, business groups, government agencies, members of the professional community, academics, and institutions. These values can provide the basis for the development of goal statements in the next phase of the recovery planning process.

CORE VALUES

1. **Equity & Diversity**
2. **Neighborhood Ownership**
3. **Innovation**
4. **Participation & Communication**
5. **Environmental Quality**
6. **Economic Vitality**
7. **Independence & Individuality**
8. **Mobility**
9. **Resilience & Sustainability**
10. **Civil Rights and Liberties**

EQUITY AND DIVERSITY

Having equity and diversity as values means respecting and leveraging the diversity of cultures in Seattle to ensure that recovery planning is fair and equitable. Recognize that communities will have different perspectives and aspirations for how their neighborhood should redevelop following a disaster.

NEIGHBORHOOD OWNERSHIP

Seattle is a city of neighborhoods. This is a strength that undergirds Seattle's quality of life and resilience. Residents and neighborhood business owners take great pride in their communities and need to be key influencers on how a neighborhood redevelops.

INNOVATION

Innovation has been part of Seattle's identity as the city has sustained and grown its economy through cycles of economic growth and decline. A disaster recovery strategy for Seattle should anticipate that technological, social, economic, and environmental innovation will be incorporated into a Seattle recovery plan. The opportunity to effect transformative change and advance planning goals post-disaster can be facilitated much more effectively with pre-event planning. These planning goals include those that may not have had support, resources, or political will to accomplish them pre-disaster.

PARTICIPATION AND COMMUNICATION

Seattle is known for its passion for process. It is a core belief that everyone can have their say in how the city makes decisions. An inclusive, transparent process of governance during disaster recovery will be important to respect, especially as planning and development choices progress post-disaster.

ENVIRONMENTAL QUALITY

Seattle's wealth of natural amenities is part of what defines environmental quality and is a key aspect of life for Seattleites. The preservation of and respect for issues that define Seattle's

environmental well-being will be important to guide decision-making post-disaster. Protecting environmental systems (e.g. watersheds/wetlands, critical areas, etc.) can also serve as a powerful means to reduce the impacts of natural hazards (e.g. flood, landslide, wildfire), which are part of the natural environment.

ECONOMIC VITALITY

Seattle's economic vitality is central to the economic health of the overall region. A diverse range of businesses large and small have sustained a vibrant economy in the region for generations. The continued vitality of Seattle's economy is a critical element of the community's long-term recovery. Though dependent upon a number of related factors, such as infrastructure, social well-being, and the restoration of capital assets, rapid economic recovery depends heavily upon the preparedness and decision-making of the private sector in the post-disaster period. Therefore, a robust recovery will require inclusion of the private sector in recovery planning pre-disaster.

INDEPENDENCE AND INDIVIDUALITY

Independence and individuality are values that motivate individuals and the community as a whole. Achieving self-reliance is an important element of a good recovery and sustainable development goals.

MOBILITY

All modes of mobility are essential to speed recovery of the City. Whether by automobile, bus, truck, train, ferry, cargo ship, aircraft, bike, or foot – people, companies, and governments depend upon a fully-functioning transportation system. Building resilient networks of transportation facilities and having a plan to rebuild the full complement of mobility options post-disaster will aid successful recovery.

RESILIENCE AND SUSTAINABILITY

Resilience refers to creating and utilizing the systems, policies, technologies, and other means that can give a City and its inhabitants an enhanced ability to recover quickly from a major disaster and adapt to changing conditions over time. Sustainability refers to the ability to sustain the city's environmental, economic, and cultural qualities over time – including times of crisis and recovery. These two key themes are fundamental to the recovery plan.

CIVIL RIGHTS AND LIBERTIES

Respect for civil liberties is a core value and stated legislative priority in the City of Seattle. City Council Resolution 30578 states, in part, "The preservation of civil rights and liberties is essential to the well-being of any democracy, particularly during times of conflict when such rights and liberties, especially those of immigrants and ethnic minorities, may be threatened..." The recovery period following a major disaster is an especially critical time for ensuring that constitutionally-protected civil liberties are upheld for all residents. Its inclusion as a core value in this document underscores the importance of upholding civil rights and liberties during and after a major disaster.

ISSUES AND STRATEGIES

Recovery Plan Issues & Strategies

One of the keys to successfully understanding the issues that will be important to the City's recovery is the broad, ongoing outreach and participation of stakeholders and the public. As noted above, it is the non-disaster professionals who will be leading the recovery by the decisions, investments, and commitments they make. Those decisions will be based on an understanding of the task ahead, the availability of financing, the sense of ongoing safety, and the connection that these decision-makers have to this community and this place. To address these challenges, stakeholders were engaged in a series of workshops. Participants expressed their ideas through small group discussions about their perception of major recovery issues and associated recovery strategies. Additionally, some of the key actors necessary for successful long-term recovery planning were identified.

A number of potential issues were identified, along with associated implementation strategies and critical actors that will be necessary to carry out recovery tasks both pre- and post-disaster. These categories can be used as a framework to identify how to direct recovery planning efforts and who to involve. The plan should also consider identifying various levels of investment or effort for each issue type. This could provide some guidance as to the level of planning needed for each issue category.

CATEGORIES OF RECOVERY ISSUES

BUILDINGS AND LAND USE

Examples:

- Regulatory: Permitting, Codes (e.g., building, land use, zoning)
- Housing
- Unreinforced masonry (URM) buildings

INFRASTRUCTURE / PUBLIC FACILITIES

Examples:

- Fuel, Water, Power, Steam, Roads, Rail, Ports

ECONOMIC / FINANCE

Examples:

- Employment / Business recovery and retention / Economic revitalization
- Fiscal: Resource allocation, Access to capital, Mechanisms for disbursement

HEALTH / SOCIAL

Examples:

- Vulnerable populations (access / mortality)
- Public health (incl. mental health), public safety
- Education: Schools and healthcare

ENVIRONMENTAL QUALITY

Examples:

- Debris clearing, environmental remediation
- Sustainable infrastructure for multiple benefits

COMMUNITY OUTREACH

Examples:

- Public education: "Survivor" v. "Victim" mentality
- Public participation in recovery
- Community group / association networks

PUBLIC LEADERSHIP

Examples:

- Project prioritization
- Transition back to normalcy
- Preparedness at all scales: regulatory, financial, etc.
- Communication

Sample of Issues, Strategies, and Critical Actors in Recovery Planning

ISSUE TYPE	ISSUE	RECOVERY STRATEGY	CRITICAL ACTORS
Buildings and Land Use	Housing	Address un-reinforced masonry structures Relocate buildings from liquefaction zones	Historic preservation groups Multi-disciplinary professional groups
Infrastructure / Public Facilities	Coordination of pre-/post-disaster planning	Joint approach with multiple actors to thoughtfully re-shape infrastructure systems	Utility providers, Transit agencies, Neighborhood leaders, Non-profit organizations
Economic / Finance	Employment / business retention	Create systems in advance to allow for easy access to cash / capital Ensure necessary relationships & agreements made ahead of time	Banks, City agencies, community associations, businesses
Health / Social	Ensuring vulnerable populations have access	Include people with disabilities in planning process ahead of time Determine accessibility considerations pre-disaster	Vulnerable populations, NGOs, social service organizations
Environmental Quality	Environmental clean-up, debris removal	Rebuilding in an ecologically-mindful way	Non-profit organizations Agencies
Community Outreach	Public participation in recovery planning	Solicit input on the plan pre-disaster from multiple stakeholder groups	Neighborhoods, businesses, government agencies, et al
Public Leadership	Project prioritization	Develop objective methodologies to determine fair, equitable, and economical redevelopment projects	Agencies, consulting firms, NGOs, individuals and community leaders
Education	Schools, daycares, and other educational facilities	Develop strategies to get educational facilities up and running ASAP, using them as hubs for information, healthcare, and basic services such as food distribution if needed.	School districts, daycare providers, health and social service providers

RECOVERY PLAN CONCEPT

The Plan Concept

Disasters can have broad and deep impacts to people, institutions, and businesses in the city. Planning for recovery needs to engage the whole community to work towards making Seattle a more resilient and sustainable city. For the plan to be successful, it must enhance the adaptive capacity of the city to absorb and bounce back from all kinds of change. This includes taking care of those in need, empowering self-reliance across the city fabric, and understanding systems dynamics between and across the range of urban services.

A few key concepts that should be included in the Disaster Recovery Plan are detailed below.

1. *Enhance and augment social resilience.*

Because we cannot know the extent or impacts of any particular disaster in advance, the strongest indicator of a successful recovery is strong social linkages across the diversity of the community.

Planning for disaster recovery is more akin to community-based planning than the more professionalized command and control methodology that is appropriate for disaster preparedness and response. Increasing the social resilience of the community is an important guiding concept of this recovery plan. The plan will include pre-disaster strategies that enhance and augment the social resilience of businesses, landowners, governments and citizens to disasters of all kinds. Particular focus will be to increase social connectivity with pre-disaster outreach strategies and dialogues, trainings; investigation of social media tools; cross-sector and cross-cultural introductions between members of the whole community; and incorporating locally-grounded knowledge held by citizens.

2. *Increase connectivity between disaster professionals.* Disaster professionals will continue to play an essential role in guiding post-disaster activities between the governmental sectors as well as providing information and insight to non-governmental actors. This includes developing agreements and best practices that harmonize existing

authorities; regular interaction pre-disaster (e.g., workshops, scenario planning, etc.); and creating/maintaining funding protocols between individual departments, utilities, local, regional, state, Tribe, and national governments.

3. *Keep the money flowing.* The smaller the business, the lower the income, the deeper the debt of people affected by an event, and the more important quick cash and ready credit is to their ability to participate in recovery.
4. *Develop specific resilience messaging that builds, repeats, and inculcates a survivor mindset via Seattle's formal and informal networks.*
5. *Integrate resilience strategies into city planning.* Disaster recovery policies developed in Phase Two will build resilience strategies into existing planning including Comprehensive Plan updates, hazard mitigation planning, neighborhood plan updates and other planning activities across most city departments.
6. *Consult and inform.* Public consultation and consistency with broadly held community values will remain important throughout the recovery process. Pre-disaster consultation is designed to augment and accelerate post-disaster consultation. Values that unite the community are important touchstones for disaster recovery decision-making. Mechanisms and relationships built with community-based organizations pre-disaster will need to adapt post-disaster to ensure information / services are distributed quickly.
7. *Build multi-scale structural resilience into centralized systems.* We create resilience when we nest semi-autonomous buildings (i.e., green buildings) into semi-autonomous districts (i.e. district energy, water, food, pedestrian systems). Those in turn are served by the centralized backbone of energy, water, and transportation systems. These systems interact up and down scale. They encourage the use of renewables such as wind, sun, soil, water, shade and vegetation. This multiple scale approach is not limited to natural resources. It applies equally well to social networks, mobility, food, jobs and recreation.

BUILDING MULTI-SCALE RESILIENCE INTO CENTRALIZED SYSTEMS

Engineers that manage centralized systems have taken a number of steps to increase their robustness. Critical pieces of infrastructure are being hardened and upgraded. Measures have been put in place to respond quickly if large pieces of the system fail.

The strength of this hardening approach is that it increases the capacity of these systems to absorb changes up to a more robust design target. The design target is typically a maximum defined by historic events, such as a design storm or longest recorded drought or an earthquake of a certain magnitude.

Yet we know that our records used to set these targets may not reflect the full variability inherent in the natural system. For example, the water utility uses the hydrological record from the last 81 years to set standards of reliability of water and energy systems. Engineers pick design targets for earthquakes that would do well in moderate quakes like the February 28, 2001 Nisqually quake, but would fail catastrophically in

larger events like the Cascadia subduction zone earthquake of January 26, 1700.

Engineers pick reasonable yet not extreme event targets for at least two reasons. First, it is difficult to predict exactly what kind of future event will impact the system so designers and regulators select a target that seems consistent with the functional design life of the system. Second, officials are loath to over-design a system for events that are by definition uncertain. When it comes to earthquakes, we don't know how big or when an extreme event will hit. This boils down to cost and practicality. The bigger the event and the more extreme the design target – the more expensive and impractical these systems become. We simply can't afford to design the system for the biggest events – even when we have geologic evidence that proves the risk.

If we cannot predict the event, if we cannot afford it anyway, and if we do not want to build all our systems like a nuclear survival bunker, then should we just ignore it?

There is an alternative approach that comes from an understanding of ecological resilience

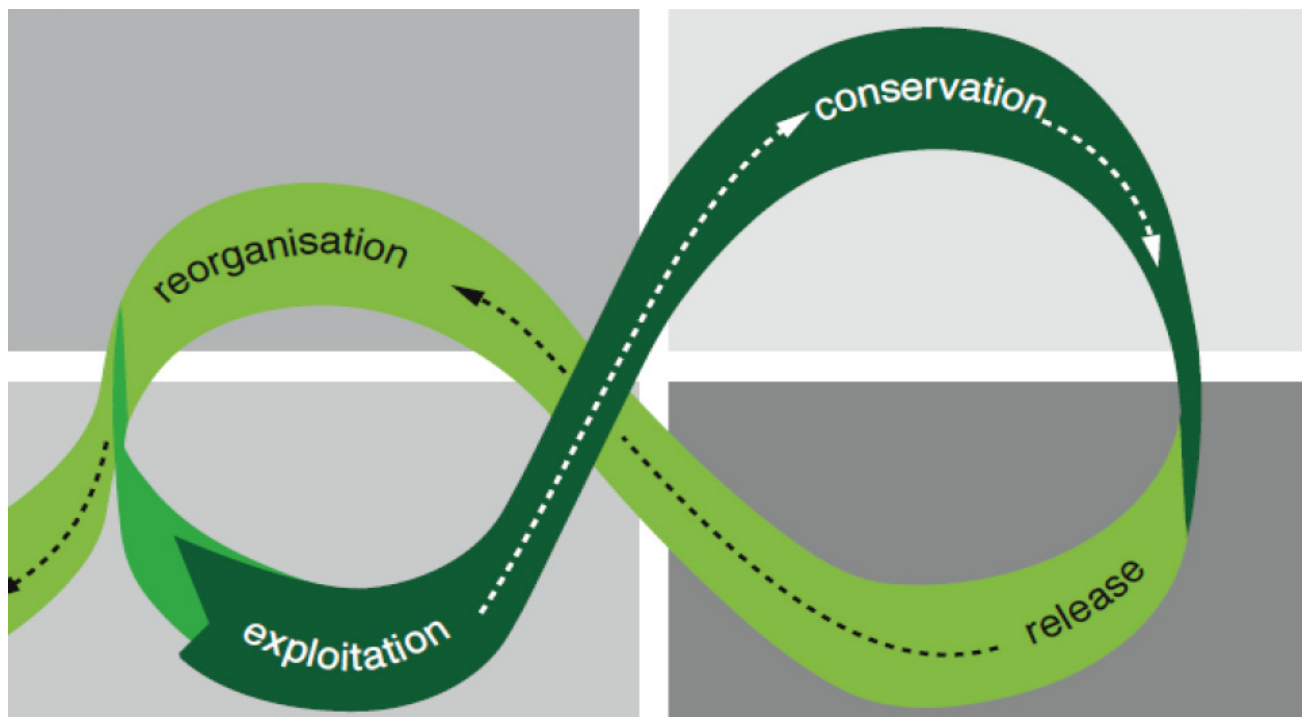


Fig. 2: Resilient systems are able to adapt quickly to changing conditions and maintain their “exploitation” and “conservation” phases longer than brittle systems.

RECOVERY PLAN CONCEPT

science. Resilience is about designing for variability in conditions – rather than designing on the assumption that conditions will remain within measured or reasonable assumptions. Recent science of climate change shows that we really do not know anymore – if we ever did – just what future climate conditions will be like. Compounding the uncertainty, fast evolving technologies, shifts in markets and resource availability, and further concentration of human populations in dense urban settings opens a compelling likelihood that the next 100 years may show us much more radical and unpredictable change than we have experienced in the city's written history.

Resilience science confirms that nature is not just growth and maintaining an ever-improving status quo forever. Nature is also a process of collapse and reorganization. Research shows that social and ecological systems (and yes, even cities) go through these inevitable cycles from growth to maturity to destruction to renewal. Those cities that have the adaptive capacity to be renewed and rebound from change while keeping their identity intact are the most resilient. Resilience is about getting better because of change, not merely armoring existing systems so that the status quo lasts forever.

The lesson of resilience is that efforts to protect the status quo at all costs may risk even more painful adjustments. Applying resilience thinking encourages us to create a portfolio of options at different scales that are designed to be more resilient with change. As we implement systems that are designed to accommodate change, then we can absorb and recover from change and use it to renew ourselves, our systems and our cities.

Resilience is about designing for variability in conditions rather than the assumption that conditions will remain within measured or reasonable assumptions.

DECISION-MAKING PROCESSES

Currently, the City of Seattle's *Disaster Readiness and Response Plan* (DRRP) is "the principal document for explaining how the City of Seattle government will engage its collective resources to respond to a major incident or disaster." The DRRP is prepared by the Office of Emergency Management (OEM) in collaboration with the City's Disaster Management Committee (DMC).

The ESF-14 annex of the DRRP takes into account both short-term and long-term recovery. ESF-14 focuses on providing a framework for recovery decision-making and implementation.

The DRRP directs that short-term recovery operations will be based on the National Incident Management System (NIMS) to the extent possible, and includes positions as illustrated in the diagram below. In addition, ESF-14 identifies specific responsibilities for each City of Seattle department.

Following a major disaster, the recovery plan will depend heavily on the action of a lead Recovery Coordinator that will coordinate all appropriate actions in line with the Plan, existing policies, and mandates. The Recovery Coordinator will be advised by a Community Recovery Task Force (or similarly-titled organization) composed of a broad representation of key stakeholders in the city.

What is the role and function of the Community Recovery Task Force?

The Community Recovery Task Force should reflect the geographical, cultural, and economic diversity of the city. It will serve as a conduit to update decisions makers on real-time conditions and challenges throughout the city before and during the recovery process. It will also review major actions under consideration by the Recovery Coordinator for both the public and private sectors.

The Task Force is advisory to the Recovery Coordinator. The intent is for the Task Force to frame that advice within the context of shared community values identified in draft form in Phase One of the Seattle Disaster Recovery plan.

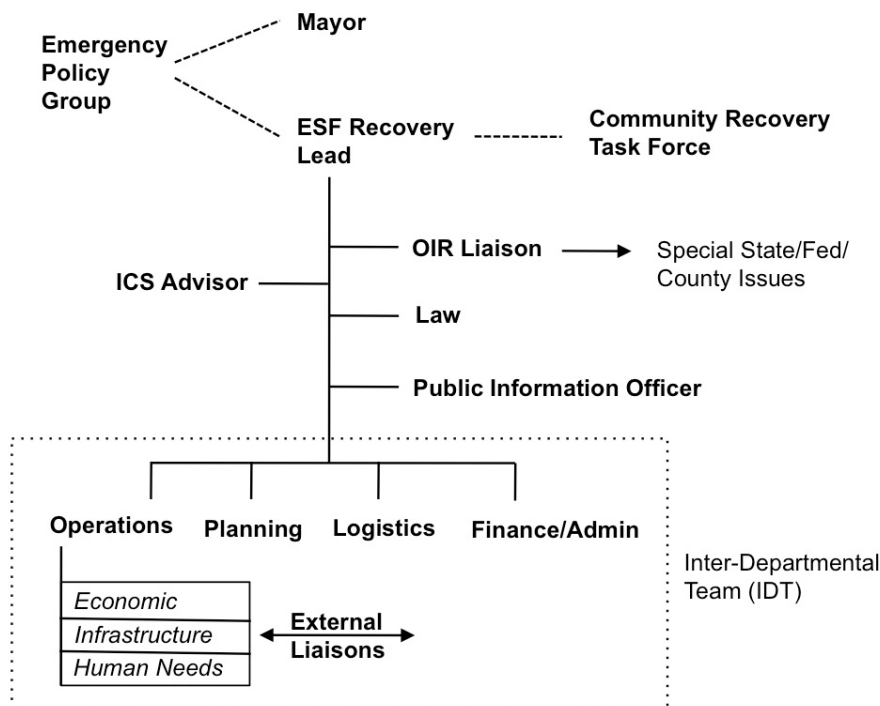
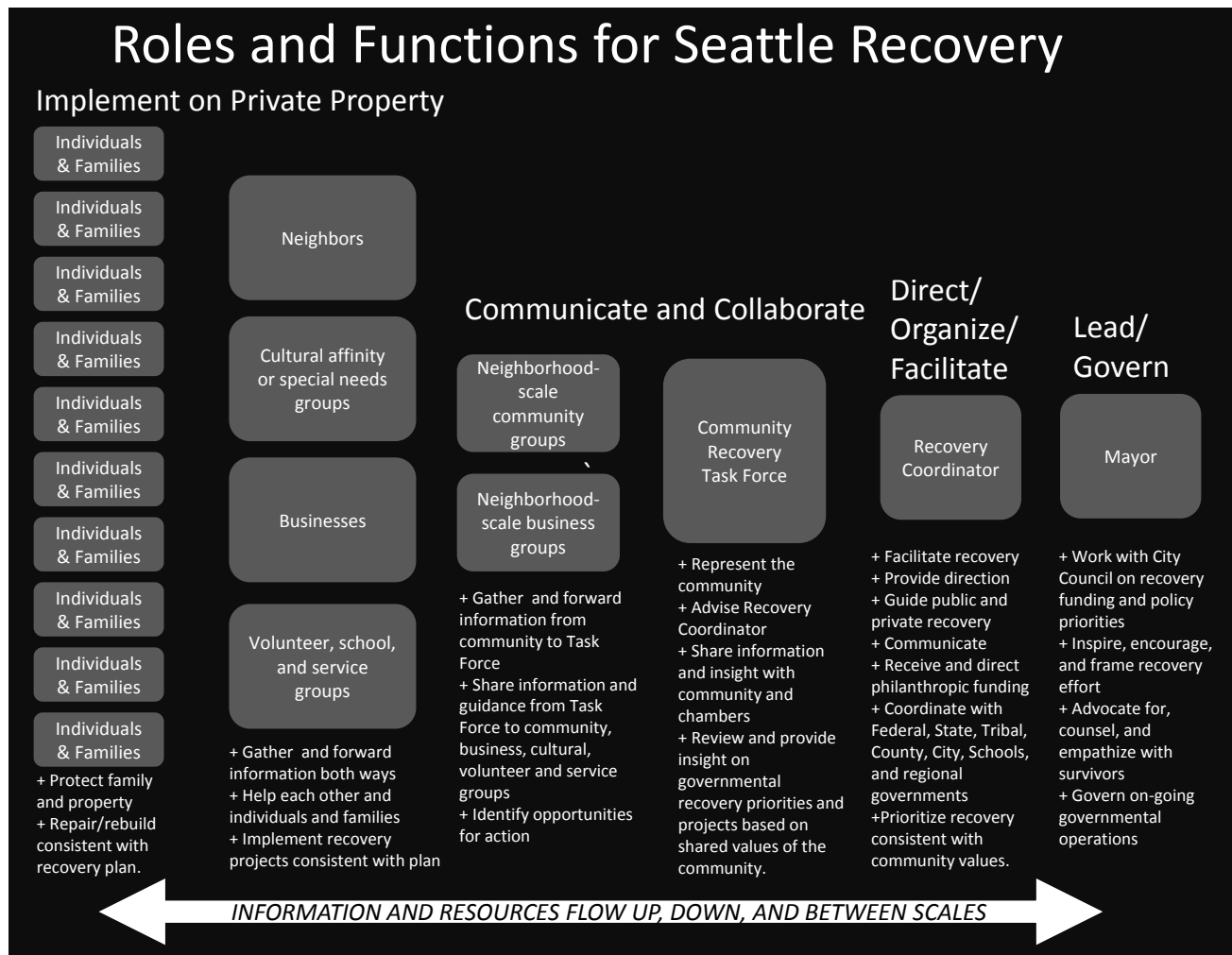


Fig. 3: Recovery Operations Organizational Chart (Adapted from EFS-14 in the Seattle DRRP)

DECISION-MAKING PROCESSES



Because recovery planning and implementation requires trade-offs, using shared values as touchstones for recommendations from the Task Force will help the Recovery Coordinator, the city government, and community members as they sort through the overwhelming needs that make recovery an unprecedented challenge.

Members selected for the Community Recovery Task Force should be highly connected individuals who have ongoing and trusted relationships throughout the city and in the geographic areas that many will represent. Some portion of the Task Force representatives should be known and recognized for their ability to articulate the interests and needs of the neighborhoods (e.g., community councils, neighborhood sustainable groups, and neighborhood business associations) in geographic sections of the city – such as

Southwest, Southeast, Central, Center City, Northwest, and Northeast. Other representatives should represent small and medium businesses, cultural and special needs groups, as well as volunteer, school-based, and service groups. Several other “at large” members should be invited who have skill sets that can complement the Task Force. These might be those with expertise in particular aspects of recovery who can help the Task Force to frame their recommendations to have the most impact for their recommendations.

Because the Task Force is advisory, it is not necessary that the group be in full agreement for any recommendation although consensus will be most valuable for the Recovery Coordinator and others involved in the recovery effort. In fact, the Task Force may choose to recommend conflicting points of view with a clear description

of the differences represented at the table. A professional facilitator should be brought on board to help the Task Force conduct business and move through their agendas.

The Role of the Recovery Coordinator

The Recovery Coordinator is a difficult and vital position. The coordinator must facilitate recovery across the array of interests and scales of the city. Clear, compelling direction and guidance must be provided to government and citizen entities to make good choices consistent with shared community values. The coordinator must work alongside Federal, State, Tribal, County, other cities, schools and regional governments while accelerating decision-making and implementation of the plan. This person must be able to prioritize recovery efforts that reflect the advice and information from the Community Recovery Task Force. Ultimately the coordinator must be able to balance difficult and potentially contentious political dynamics that are bound to be exacerbated during the post-disaster recovery period.

The Recovery Coordinator should also have access to a non-profit entity empowered to receive and distribute recovery funds from private and foundation sources. The intent of these funds is not to compete with relief agencies or governmental funds – rather it is to provide flexible funds that can be immediately applied with minimal red tape to achieve near-term outcomes that must move more quickly than ordinary decision timelines. Use of these funds would not relieve the coordinator of accountability, however. All monies must be tracked and accounted for and should be subject to annual or biannual audit.

What is the role of elected officials during the recovery plan?

During a recovery period, the Mayor and City Council will be challenged with overseeing the portfolio of governance that they already control. Their role will be to work collaboratively on recovery funding and policy priorities as identified by the Recovery Coordinator. They will be especially needed to inspire, encourage, and

properly frame the recovery effort to staff, business leaders, media and the public. Constituents can be disoriented or shocked in the aftermath of a disaster and will be seeking leadership and understanding from elected officials. As the recovery period continues over the post-disaster months and years, elected officials will need to advocate for, empathize with, and counsel those still struggling to achieve full recovery.

KEY POLICY ISSUES

Key Policy Questions and Issues to Inform Phase 2 Scope Development

1. How does the recovery plan relate to other city plans like the comprehensive plan, neighborhood plans, or other city planning efforts?

The Seattle Disaster Recovery Plan should be maintained separately as a complement to ongoing planning by the city. Each of the existing plans for city services should be strategically amended to enable policies consistent with the intent of the recovery plan. In particular, the Comprehensive Plan, hazard mitigation plan, neighborhood plan updates, transportation plans, transit-oriented development plans, utility plans, capital planning for the city and regional plans should all be reviewed in Phase 2 of the recovery planning process for additional goals, policies, and actions that will reference and leverage the recovery strategy.

2. What role do the neighborhoods play in recovery?

Seattle's tradition of strong neighborhoods with unique identities is a plus for disaster recovery. A neighborhood where strong social cohesion is nurtured creates capacity that is fundamental to community recovery. A social network of connected people who know and trust each other is a strong basis for disaster recovery. Neighbors can provide neighbors with timely information, appropriate insights, and shared resources during the long recovery process. A community attitude of being survivors, of being adaptable, being positive and having a desire to make the neighborhood better than ever, and having knowledge of local conditions and needs before and after disasters all play a role.

Building on and augmenting neighborhood connectivity within neighborhoods and between neighborhoods should be an ongoing

high priority for the recovery planning process. An astute plan will create a constituency for resilience who will know who to contact, what needs to be done, and how things can improve in the future.

Enlightened neighborhoods that adopt social and structural resilience will also become a pool of knowledgeable volunteers who can reach out to other parts of the city following a disaster.

3. What role do businesses play in recovery?

Provision of goods and services and jobs can be severely impacted during a disaster. Reestablishing business is essential for long term recovery.

For smaller businesses an extended period of down-time can be fatal. FEMA notes that somewhere around 40 percent of small businesses fail following a disaster. Revenues can fall immediately and dramatically for days, weeks, or months. Businesses without significant reserves or access to sufficient lines of credit can find themselves unable to continue. Even businesses anticipating relief from government funds or insurance payments can be severely stressed as they seek reimbursement which requires that they float the costs, fill out significant paperwork and wait weeks or months for review and payment.

Larger firms or national firms may weather such an event somewhat more easily as the breadth of their business can absorb shocks if only a portion of their enterprise is affected.

Within days of a disaster many employers decide if they will stay and rebuild or leave and restart their business in an unaffected area. If their sense is that the disaster has so overwhelmed the region that it will be a long time for the return of essential services, many employers decide to reopen in a new location elsewhere, which can permanently reduce the number of jobs and revenues in the city.

4. What are the financial issues that make recovery difficult and what are some strategies to consider?

The financial implications of a major disaster are extensive and often long-lasting. Insurance or government funds do not cover all the losses following a large disaster. As noted above, businesses lose revenue every day they are not open for business. Likewise, their employees lose wages every day that they cannot work. Local governments find that their tax revenues are also severely impacted because there is less money flowing through the local economy. Those with debt or no savings or limited access to lines of credit can find themselves without adequate resources to continue.

Availability of ready cash for those impacted is an issue in the first days of disaster recovery. Cash is king. Credit for those who expect reimbursements is also needed. Credit is also needed for those businesses that will need to cover lost revenue.

The lack of credit availability remains a constraint on the recovery even as the recovery moves into the mid to long term. As government relief reimbursements and insurance claims are paid, there typically remains a shortfall that must be borne by the governments, businesses and individuals affected.

Specific programs (financial tools) need to be developed that can help to assist in the finances of recovery. These programs should be put into place before a disaster. For example, one tool could be to allow small businesses to pre-qualify for disaster recovery loans. These funds could be used as ready cash for payroll or immediate repairs. Federal or state government could become a guarantor of the loans thus reducing the risk for the lenders. The economics and functional program elements of such a program and any number of others will require further development.

Before a disaster, another way to facilitate post-disaster financial recovery is to convene regional financial institutions to walk through the kinds of issues that will be faced by their borrowers in a recovery scenario. Specific tools and programs like the one described above can be developed in advance as an investment in the continuity and recovery of the community.

There are other financial tools available – particularly for non-profits and public agencies including federal grants, bonds, levies, federal rehabilitation tax credits, tax abatements, revolving loan funds, and transfer of development rights. Making certain that those impacted have access to information about and understand how to leverage these resources will be important during the recovery period.

5. What sort of funding is available to create and update the Disaster Recovery Plan?

The Seattle City Council provided funding for the Seattle Disaster Recovery planning process. Once the plan is adopted there will need to be consistent updates and engagement with the public to maintain the validity and effectiveness of the plan. At this time there is no outside funding stream for the plan so it will be important for program directors and local elected officials to continue to fund the multiple benefits that come from a pre-disaster recovery plan including increased community connectivity and social resilience, new tools and programs that will shorten the impact of disasters, and increased resilience of the city to all kinds of sudden and catastrophic change.

A metaphor for funding the pre-disaster recovery planning is to consider it as akin to insurance premiums. If a Seattle Fault earthquake causes \$30 billion in damage and 1,600 deaths, what is a reasonable premium to moderate or reduce those losses? The benefit/cost ratio can be calculated if those premiums achieve multiple community

KEY POLICY ISSUES

benefits that can be quantified or qualitatively evaluated, including increased emphasis on neighborhood resilience and food security.

6. How can we address the known conflicts with the need for temporary housing and the transition pathway to permanent housing?

Dealing with temporary housing and the transition to permanent housing is particularly difficult in urban areas. Trailers used in rural areas may have a difficult time fitting into dense city patterns. Some scholars argue that energy and resources spent on “temporary” housing can impede progress towards more permanent solutions. Too often temporary housing becomes de facto permanent housing if property owners have no funds to build a new replacement home. This gets even more difficult when the housing that is damaged or destroyed is multi-family. It takes 18 months or more to rebuild a typical multi-family facility excluding cleanup and restoration of access and services. Sometimes long term use of hotels is used, but the costs can be very expensive.

There are a number of innovative proposals for temporary housing such as use of containers or pop-up buildings yet few have managed to become widely available or in wide use. In part, the issue is that the demand can go from zero to tens of thousands of units within a few moments or days. For example, Hurricane Sandy in New York City alone accounts for the sudden need for 20,000 housing units.

Given the difficulty of this issue, it will require a dedicated effort, creativity, and a commitment to solutions to devise economically viable building replacement strategies. The time to work on such a solution is before a disaster hits; thus it is a strong candidate for focused work as part of an ongoing disaster recovery planning process. Architects, planners, neighborhood representatives, building officials and other government officials need to develop a plausible range of options that are flexible and adaptable enough to

accommodate immediate needs without compromising the intended ultimate recovery.

7. How can we keep Seattle employers and Seattle jobs in Seattle after a disaster?

Participants in the stakeholder workshops noted that many employers may decide to reopen in a new location if their sense is that the disaster has overwhelmed the capacity of the region to respond intelligently and quickly. A major element of this is uncertainty is that employers wonder how long it will be for the return of services essential to their business’ survival. If employers relocate to a location away from the affected area then this can permanently reduce jobs and government revenues and stretch out the time to recovery.

Some financial strategies to help mitigate this effect have been noted in the discussion above. Yet the decision to stay or go is not exclusively economic. Most employers have homes and families in the region. The thought of moving a business at any time is a huge and complicated endeavor. The decision is often a judgment call – will this area recover and when and how long can we hang on? Does the recovery plan help me and my business? Because of these types of questions the immediate post disaster messaging from government officials and recovery experts can be very influential in this critical window in the recovery period.

Direct messaging by government officials as well as broader messaging by the media at the first stages of the recovery period can be influential in continuing commitment of business to the community. Phase 2 of the recovery plan should test what messages are most useful. Some examples could be: we are rebuilding better than before, government red tape will not stop us from doing what is necessary, opening vital communication and mobility corridors for business and trade is a top priority in the recovery period, and there is a strong commitment to keep employers and employees together during this time of great disruption.

Christchurch provides an example of how to maintain the critical relationship between employers and their employees. The government decided to provide a weekly cash payment per employee to employers. The employers then forward that money to their employees who were unable to work. This maintained the connection between employers and employees and was sufficient to help many employees stay local and bridge the transition back to full employment.

Events can make it difficult for employees to stay. Some employees will be unable to return to work if family members need care, if roads and bridges are impassable, if their home is significantly damaged, or if they are evacuated to distant areas. Employees may find their personal finances quickly affected with an immediate loss of income at the same time that extra expenses are needed to secure their homes and families. The risk of missing payments for housing, food, and transportation increases substantially.

A related issue that can affect employees' ability to return to work is the operation of schools and childcare facilities that allow people to work without having to stay home to take care of their children. These facilities must be restored as soon as possible post-disaster in order to facilitate a return to work.

Ultimately, employees who fail financially while waiting for their job to restart may end up moving outside the region. This diaspora effect makes it difficult for employers that finally do restart to find the experienced employees they had prior to the event thus extending the time to recover.

8. What if some areas of the city are no longer suitable for rebuilding?

This issue comes up more often than one would hope in floodways, beaches damaged or destroyed by hurricanes, large landslides, and liquefaction zones. Sometimes the area of habitation is no longer suitable and alternative locations must be found. Too often people will

rebuild in harm's way and then suffer multiple losses again and again.

Liquefaction zones in earthquake prone areas are particularly problematic. Land that supports a number of commercial, industrial, and even residential uses during normal times can become so unstable that buildings sink and differentially settle – cracking foundations and twisting buildings and floors. Christchurch offers an example that may have similar implications for a Seattle Fault earthquake. The earthquakes that damaged the city have not stopped since the initial large event. As this report is written in late 2012, Christchurch has had 10,937 earthquakes (including aftershocks) since the first large 7.1 magnitude event of September 4, 2010. These more or less continuous and reoccurring liquefaction events have made significant portions of the city unbuildable. Buildings damaged in earlier quakes are re-damaged again and again. No one knows if this sort of continuous seismicity will happen in Seattle. Yet we do know that liquefaction is an issue in large portions of Pioneer Square, Chinatown International District, Duwamish and Interbay industrial corridors and urban centers and villages in parts of Downtown, the University district, South Park, Eastlake and South Lake Union.

As Phase 2 of the Seattle Disaster Recovery plan is developed, additional work to address this issue is recommended. A range of potential approaches to be considered include:

- Evaluating land uses to determine if vulnerable populations are at risk
- Estimating risk, if any, with current land use policy, including the use of land suitability analysis
- Identifying best practices for business continuity such as relocating back office functions to less risky areas
- Considering land banking that could be used to quickly relocate industrial, commercial, residential and other uses following a disaster

KEY POLICY ISSUES

9. What are the priorities for recovery? Who is helped first? What is needed in what order to facilitate recovery?

Priorities for action will be established in Phase 2 of this plan. Planners will identify those groups who have particularly high levels of need such as children, the elderly or chronically ill, those that rely on community support, and those who are marginalized or displaced.

The NDRF identifies the kinds and timing of activities that facilitate recovery into short term, intermediate term and long term recovery (See Figure 1, Recovery Continuum – description of recovery activities by phase).

10. How can volunteers be accommodated and best placed to provide needed relief?

Management of volunteers during the recovery process is a significant task and recovery officials can be overwhelmed if not prepared. Over the course of recovery thousands of volunteers from within and outside the area will stream to the city to provide assistance.

The Disaster Recovery Coordinator will need to assign individuals to coordinate and direct volunteers to participating organizations. For example, stakeholders from community organizations that were involved in pre-disaster planning will also need to coordinate with the needs identified in the recovery plan. By involving these organizations in pre-disaster planning, some of the post-disaster collaboration protocols should be worked out in advance to take advantage of the nimbleness and flexibility that they have inherent in their organizational structure. Another method could be to utilize one stop centers or information kiosks distributed at ports of entry and throughout the region can offer updated information and “advertise” for specialist skills that are required. Many of these skills required for recovery can be identified and rosters of qualified people can be assembled in advance of a disaster.

Technology and online networks can also play a critical role. Google.org and other online

services have developed volunteer action interfaces to inform residents and guide volunteers. Those who need volunteers can submit a request to the online entity who will geo-locate the place and need. Volunteers can then refer to the constantly updated maps to identify projects where they feel their talents or interests can best be put to use. These spontaneous organizing tools can be extremely helpful and government officials and recovery staff may rely heavily on these types of “new media” interfaces.

Finally, groups that did not participate in pre-disaster planning will undoubtedly volunteer post-event. They represent an additional opportunity for recovery planners to leverage these strengths in ways that do not fit with normal governmental approaches. This strength is also a potential source of conflict as nimble and flexible groups can grow impatient with governmental constraints.

11. How will the recovery process be governed?

This Phase 1 plan proposes that a Recovery Coordinator position be created with broad authority to coordinate with city departments, community groups and other organizations and governments funded by local, state, or federal government. As outlined in the City’s *Disaster Readiness and Response Plan (DRRP)*, ESF 14, the coordinator is to be advised by a broadly representational Community Recovery Task Force that will guide the recovery process. Decisions by the coordinator will be based on the recommendations of the Task Force which will operate on an advisory basis. Detailed roles and responsibilities of the Recovery Coordinator will be spelled out and facilitated in a number of intergovernmental and inter-agency agreements to be completed in Phase 2 of the recovery process. Use of these agreements could provide a virtual unified response in the pre-disaster period and quickly scale up post-disaster based on those agreements.

An alternative under consideration was the creation of a wholly separate and ongoing entity who would manage the recovery process. Any such entity needs to have alignment between responsibility and authority. Creating a fully separate authority to receive and be accountable for receipt and direction of post-disaster funds would require an on-going organization dedicated to disaster recovery. While much of disaster recovery is non-governmental in nature, existing governments and authorities are likely to play a significant role in the receipt and distribution of funds. Given that these local governments already have well-established mechanisms in place for responsibility and accountability, it may be considered redundant to fund an entire new organization.

An important first task in Phase 2 of the recovery plan is to identify an interim Community Recovery Task Force to advise and participate in development of the pre-disaster recovery plan. The group will be broadly representative of the various Seattle communities as well as government, business, civil society organizations.

It is recommended that the Task Force meet at least six times per year for first two years, then twice per year after that. Sub-committees of the Task Force will likely be formed to focus on issues that require specific expertise. A five-year update of the recovery plan is recommended to keep the plan up-to-date and reflective of best practices in recovery planning. If Seattle faces a disaster at any time during the planning process the Task Force should be convened immediately post-disaster to advise the Community Recovery Coordinator.

Developing a job description and a “pocket” or position within city or other governmental budgets will be important early on. Existing staff may be assigned as “interim” or the position may be left vacant to be filled immediately after a disaster. A temporary or loaned executive from the public or private or community-based organizational sector could

be assigned as a “shadow” position to step in on a short-term basis to launch the recovery effort with a permanent replacement hired as soon as possible following an event.

The Recovery Coordinator should be authorized to hire or use loaned staff as needed to guide the recovery. Decisions by the coordinator should be based on the values and principles that will be formally adopted in Phase 2 of the planning process. See the “Core Values” section in this document for values recommended for the plan.

This approach is not the only option to address governance of a disaster recovery effort; these and other alternative management structures will require special consideration during the Phase 2 recovery plan process.

12. How are funding decisions made?

If the governance of the recovery process remains as indicated above, the Community Recovery Coordinator would help to orchestrate and align delivery of recovery funds as they come available. The coordinator would consult with the Task Force as well as recipient agencies and governments to recommend and guide the application and use of recovery funds.

Responsibility and accountability for the funds will remain with the governmental agencies and organizations that are qualified to receive those funds. However, via pre-disaster intergovernmental agreements, the Recovery Coordinator may have substantial influence on how and in what priority those funds will be directed while remaining in accordance with legal and other constraints applied to those funds.

These types of agreements have precedence. Federal, state, county, and city agencies regularly collaborate to assemble funding for regional priorities for transportation. This experience can be a powerful guide to decision-making in the crucial first years of recovery.

KEY POLICY ISSUES

After a significant disaster there are multiple streams of money that will flow into an affected area. All of that money has certain constraints on its use and many of the funds require that a matching amount of cash or in-kind services be provided from other sources. Some of it is only for reimbursement or can be used only to replace what was broken – not to improve it. For example, FEMA will only pay for temporary housing, but not permanent housing, even though temporary housing has a number of difficult issues that make it undesirable particularly in dense urban settings. In another example, the city should be prepared to advocate for the use of FEMA's Public Assistance 406 funds after federally-declared disasters, which can pay for the incorporation of hazard mitigation measures into the repair of some types of damaged infrastructure (reference FEMA discretionary hazard mitigation funding under Section 406 [Stafford Act]).

Understanding the resources and required matches, following the various reporting requirements, and managing documentation is daunting. Figuring out how to assign funding to local priorities is also quite difficult – especially if there has been no recovery planning pre-event. In Phase 2 of the recovery plan, it will be important to identify a strategy for funding resource management and to create Memoranda of Agreement or cooperation agreements before the event.

One of the advantages of having a fully developed pre-disaster recovery plan in force is that the City of Seattle will understand certain challenges in recovery and will be able to proactively engage with our representatives in Congress and the Senate to channel post-disaster federal money in such a way that it is consistent with the recovery plan – thus avoiding some of the constraints in flexibility that frustrate recipients who do not have a recovery plan in place.

13. How will we track and report on progress during recovery?

The Disaster Recovery Coordinator should issue within two to four weeks a broad outline of the recovery effort. These targets need to be aggressive enough to drive outcomes, detailed enough to be measureable, and flexible given that a cascade of system failures and unanticipated needs will complicate the timing of any particular steps in the recovery plan.

14. How will information be coordinated and flow to the public during recovery?

The Disaster Recovery Coordinator will need to collaborate with local government officials and should have a staff person experienced in public outreach, engaging with CBOs and working with news media.

15. How will recovery activities be tracked for record-keeping and administration of reimbursements?

Tracking and reporting of funds and volunteer efforts is an important element of a Disaster Recovery Coordinator. The Office of Emergency Management has staff trained in this effort. However, a large disaster would quickly overwhelm available resources. Phase 2 of the disaster recovery plan needs to identify a tracking and reporting protocol for recovery purposes that can be made available to all the organizations that may play a role in receiving, dispensing, or providing a match for recovery funding.

16. How often will the Recovery plan be maintained and updated?

The report should be updated enough to remain relevant and known to officials and outside partners in a recovery. For example, five years is a reasonable period that will allow for new insights in disaster recovery and new technologies while being often enough that staff and officials remember the agreements and strategies already completed. The plan should also be reviewed and potentially

updated after disasters that strike Seattle and as lessons are learned from events that affect other cities.

17. What is the best way to interact and facilitate the donor community who will be providing resources to help in recovery?

Phase 2 of the recovery plan should initiate several meetings and focus sessions with the donor community to better understand their needs and the intentions of the Seattle Disaster Recovery Plan. They will be better able to direct their funding efforts and the city will be able to better align their needs with available funds.

DRAFT SCOPE OF WORK OUTLINE

DRAFT Disaster Recovery Plan Phase 2 Scope of Work Outline

Phase 1 of the Seattle Disaster Recovery Plan outlines the types of activities needed to prepare for recovery planning. The steps required to complete the plan are outlined below as a consultant scope of work for Phase 2, with the assumption that a consultant team will work in partnership with the City to create the post-disaster recovery plan. These tasks involve pre-disaster activities and outreach, analysis of alternative policies, mechanisms and metrics, and engagement with the Disaster Recovery Task Force and a broad diversity of organizations and members of the public.

MAIN SECTIONS:

1. *Review existing documentation and best practices for recovery planning*
2. *Engage and Convene Stakeholders; Identify Key Areas for Creating Resilience and Develop Recovery Strategies*
3. *Create Mechanisms and Metrics for Recovery Actions*
4. *Refine Recovery Governance Structure; Define Roles & Responsibilities*
5. *Develop Critical Policies and Links to Other Planning Documents*
6. *Recovery Plan Synthesis: Define the Recovery Program and strategies for addressing issues in key areas (i.e., Recovery Support Functions)*

Engage and Convene Stakeholders; Identify Key Areas for Creating Resilience and Develop Recovery Strategies

- *Create/Convene Disaster Recovery Task Force*
- *Define roles/structure*
 - » Use criteria developed in Seattle Disaster Recovery Plan Phase 1 regarding

representation, roles, responsibilities and authority.

- » Outline process for coordination with regional organizations if disaster impacts areas outside of Seattle
- *Provide outreach to constituents on the progress of the Disaster Recovery planning process*
- *Define focus areas using guidance from framework plan and others as appropriate, and convene groups of stakeholders for each focus area. Examples:*
 - » Housing: Convene architects, planners, members of housing authorities and community development corporations, and disaster experts to develop post-disaster transition pathways from temporary housing to permanent housing
 - » Infrastructure: Work with Task Force members and stakeholders to develop business case descriptions for resilient systems for water, energy, food, and transportation
 - » Human services: Work with stakeholders such as the City's Human Services Department, mental health agencies, social workers, and others who can provide key insights on basic human needs, especially for vulnerable populations.
 - » Schools and childcare: Work with school district officials and childcare providers to develop plans for post-disaster recovery, as well as critical roles that can be undertaken by school facilities post-disaster.
 - » Cultural: Consult with state, Tribes, and historic preservation officials to adopt post-disaster policies for protection of heritage sites as well as cultural and archeological resources
 - » Land use: Meet with land use regulators, developers, builders, and investment firms and develop draft "retreat" policies for unbuildable lands
 - » Environment: Convene regulators and stakeholders to consider post-disaster

environmental protection and restoration policies

- » Finance / Economic Development: Convene financial institutions and experts to develop finance mechanisms
- » Real estate: Work with Task Force pre-disaster to develop draft criteria for “catalyst” projects that can kick off redevelopment in impacted areas
- » Arts: Consult with arts professionals on potential role of arts and artists in recovery
- » Media: Convene media dialogue about disaster recovery roles, responsibilities, and potential issues
- *Define how to “Rebuild better”: Develop draft rebuilding goals for a better city, in consultation with Recovery Task Force*
 - » Increase resilience
 - » Increase sustainability
 - » Incorporate hazard mitigation
 - » Incorporate nature
 - » Maintain and enhance character and aesthetics
 - » Increase mobility
 - » Reestablish vibrant local economy
 - » Enhance local food security
 - » Reflect city goals for diversity, environmental and social justice

Create Mechanisms and Metrics for Recovery Actions

- *Identify and define performance metrics for phases, timeline targets, and milestones for short-, mid-, and long-term recovery*
 - » Economic/business recovery, housing recovery (temporary and permanent), infrastructure recovery, et al
 - » Consider levels of investment required for recovery efforts and identify actions that achieve recovery in different focus categories (e.g., buildings & land use, infrastructure, environment, etc.)

- *Develop & test finance mechanism concepts such as:*
 - » Pre-authorized disaster loans for low-income homeowners and small business payrolls
 - Consider appropriate pre-requisites such as credit-worthiness, completed recovery training and development of a business continuity plan
 - » Vehicles to facilitate cash payments to keep the business/employee relationship (per Christchurch, NZ)
 - » Land banking for displaced jobs /populations (link to identified hazards & land use policies)
 - » Others
- *Develop robust economic impact analysis framework*
 - » Develop a framework to test elements of the recovery plan using triple bottom line business case analysis to determine not only economic, but also social and environmental impacts
 - Includes “apples to apples” comparison between diverse alternatives using benefits and costs across the community, environment, and economy. Sensitivity to impacts can also be tested using different discount rates, timing, vulnerability to cost changes in essential elements and other criteria.
- *Draft training curricula and/or appropriate resources for business, neighborhoods, government officials on disaster resilience*
 - » Examples include “Train the trainer” sessions, online courses / reference
 - » Conduct regular updates
- *Develop social resilience mechanisms that link people, institutions to each other pre-disaster and post-disaster*
 - » Develop trainings both in person and online people, institutions, across boundaries
 - » Create multiple tools for communication
 - » Develop pre-disaster messaging about “survivor” vs. “victim” mentality, being adaptable, etc.

DRAFT SCOPE OF WORK OUTLINE

- » Collaborate with technology developers such as Google.org or others on crisis map/ recovery map features
- » Engage individuals and community groups in the development of the plan and the identification of local needs after disasters
- *Identify and define how technical analysis mechanisms, such as GIS, could inform post-disaster recovery planning*
 - » Conceptualize relationships between land use types, vulnerable populations, and infrastructure investment priorities with disaster scenarios and land suitability analysis
 - » Define analytical approaches
 - » Involve citizens and community groups in the risk assessment process, including the evaluation of the data and methods used and the incorporation of local, indigenous knowledge into the process

Refine Recovery Governance Structure; Define Roles & Responsibilities

- *Confirm structure for post-disaster governance proposed in Phase One.*
 - » Draft Recovery Coordinator key roles and responsibilities
 - Propose funding time periods and nature of the position, e.g., using temporary/loaned executive
 - Define roles both pre- and post-disaster
 - » Identify details of Recovery Task Force (Advisory to the Recovery Coordinator), convened immediately post-disaster
 - Define nature of relationship with Recovery Coordinator, timing of meetings, etc.
 - Determine representation: broadly representative of community, government, business, diversity
 - Identify Task Force committee assignments for issue-specific focus
- *Define roles of actors at all levels and in all sectors*
 - » Individuals

- » Community organizations and non-profits
- » Private sector entities
- » Government: Local / Regional / State / Federal / Tribal
- *Define transition strategy post-disaster*
 - » Identify key milestones for each period of recovery

Develop Critical Policies and Links to Other Planning Documents

- *Develop and define agreements and policy linkages to existing formal planning documents*
 - » Comprehensive plan
 - Propose policies for resilience to be included to make Seattle resilient to all kinds of change
 - Identify areas and land uses most fragile to change and strategies to mitigate or shorten the recovery time after disturbance
 - Develop land use transitions for land uses most vulnerable to disturbance
 - Identify uses to be excluded from hazard-prone areas, e.g., nursing homes, daycare facilities, or confinement institutions
 - Others
 - » Hazard mitigation plan
 - Identify hazard projects and policies noted in the plan and be prepared to implement them if post-disaster funding allows.
 - Use risk assessment conducted as part of the hazard mitigation planning process to help inform disaster recovery decisions (e.g. the location of temporary housing, the repair of damaged infrastructure, assistance provided to socially vulnerable populations)
 - » Neighborhood plans
 - Explicitly define how resilience planning can be incorporated into neighborhood plans
 - » Utility plans
 - Policy direction to utilities to plan for multi-scale resilience

- Address planning alternatives to increase resilience, such as nested semi-autonomous systems
- Conduct business case analysis for resilient systems using triple-bottom-line metrics
- *Transportation plans*
 - » Complement policy direction to utilities to plan for multi-scale resilience
 - Determine how to augment / enhance existing policies such as Complete Streets
 - Conduct business case analysis for resilient systems using triple-bottom-line metrics
- *City-wide capital planning*
 - » Relocate at-risk infrastructure
 - » ReDevelop building code transition strategy
 - Determine code update needs, e.g., escalating code for more significant events
 - » Address potential for a project prioritization methodology in times of disaster recovery
- *Plan maintenance and updates*
 - Determine needs for ongoing monitoring and define timeline
 - Propose regular review cycle (e.g., 5-years)

Recovery Plan Synthesis: Define the Recovery Program and strategies for addressing issues in key areas (i.e., Recovery Support Functions)

- Buildings and Land Use (including housing)
- Infrastructure / Public Facilities
- Economic / Finance
- Health / Social
- Environmental Quality
- Community Outreach
- Public Leadership

APPENDICES

Appendix A: Meeting summaries

Summaries of input gathered from three stakeholder workshops, including guiding principles, shared values, issues, strategies, and principal actors.

Appendix B: Survey results

Summaries of key insights into the disaster recovery planning process documented by the participants at each workshop.

Appendix C: Existing documentation summary

Summaries of existing documentation relating to disaster recovery planning at the city, regional, state, and federal levels.

Appendix D: Case studies

A review of disaster recovery planning and related activities in the United States and abroad, including a summary matrix

Appendix E: Reference materials

Additional materials that can provide insight and value to the ongoing Seattle disaster recovery planning process.

APPENDIX A: MEETING SUMMARIES

Meeting Summaries

Three stakeholder workshops and one roundtable discussion with the Department of Planning and Development were held during the course of the Framework planning process. An extensive and diverse set of organizations were solicited to attend and provide input on the recovery plan framework – including the guiding principles, shared values, key recovery issues, and strategies. All workshop participants were solicited for further input via a survey, distributed at the end of the workshop (included in **Appendix B**). The survey collected information on who should be involved in future recovery planning efforts, including a “community recovery team”. Such a group would be composed of representatives from a diverse group of stakeholders and could act as a liaison between the local government and non-governmental actors.

Full documentation of the outcomes of each workshop is included following this summary.

STAKEHOLDER WORKSHOP #1:

11/9/2012, 9 AM - 12 PM

SEATTLE CITY HALL, BERTHA LANDES KNIGHT ROOM

The first of three stakeholder workshops, this workshop included representatives from the Seattle Disaster Management Committee, as well as representatives from key City of Seattle and other local government agencies. The purpose of this workshop was to gather together stakeholders already active in disaster management and recovery planning, and build a set of informed insights that would generate core disaster recovery principles, issues, strategies, and principal actors.

The workshop included an overview of the purpose of the disaster recovery planning process and key themes of recovery planning, followed by a break-out session, during which workshop participants identified key principles that could provide the foundation for the recovery plan. A second facilitated break-out session identified key issues, strategies, and primary actors. Participants completed a survey at the end of the workshop.

Attendees:

Name	Title	Organization
Cliff Babcock	Safety Coordinator	BP Olympic Pipeline
Matthew Carnell	Major Acct. Mgr	Verizon Wireless
Margaret Cesena	Mgr., Neighborhood Service Ctrs.	City of Seattle
Bob Chandler	Asst. Director	SDOT
Karimah Cooper	Emergency Mgmt. Planning and Development Spec.	City of Seattle HSD
Lawrence Eichhom	Emergency Mgmt. and Security Advisor	SDOT
Richard Gelb	Performance Management Lead	King. Co. DNRP
Stan Gent	President	Seattle Steam
Ann Graves	Enforcement Supervisor	Seattle Animal Shelter
Michael Hamilton	Chief Information Security Officer	City of Seattle
Elenka Jarolimek	Emergency Management Coordinator	City of Seattle, Finance and Admin. Svcs.
Jerry Koenig	Security Office / Emergency Planner	Seattle City Light
Tracy Krawczyk	Policy and Planning Dir.	SDOT
Tim Lupher	Port Recovery	USCG
Don Jordan	Executive Director	Seattle Animal Shelter
William McGillin	Sr. Asst. City Attorney	Seattle City Attorney's Ofc.
Sabra Schneider	Dir., Electronic Communications	City of Seattle Dept. of IT
Monica Martinez Simmons	City Clerk	City of Seattle
Eve Sternberg	Strategic Initiatives, Capital Planning Partner	Seattle Public Library
Karl Stickel	Fiscal and Policy Analyst	City of Seattle Budget Ofc.
Tina Vlasaty	Director of Finance and Operations	City of Seattle Office of Economic Development
Jill Watson	Emergency Mgmt. Planner	City of Seattle
Yolande Williams	Court Administrator	City of Seattle
Vicki Wills	IT Strategic Planner	City of Seattle
Bill Wolak	Sr. Planning Specialist	Seattle Police

APPENDIX A: MEETING SUMMARIES

STAKEHOLDER WORKSHOP #2: 11/13/2012, 1 PM - 4 PM

COLLINSWOERMAN OFFICES, SEATTLE

This workshop included a group of stakeholders from the public, private, and non-profit sectors and was conducted in a “focus group” format with the whole group included in all discussions. Following an overview presentation from the consulting team, the workshop began with a “shared values” exercise that identified some of the key unifying principles that should underlie the recovery planning process. Following the shared values discussion, workshop participants engaged in an open discussion of the key issues, strategies, and principal actors. A survey was distributed and the results collected at the end of the workshop.

Attendees:

Name	Title	Organization
Arif Ghouse	Director, Maritime Security / Emergency Planning	Port of Seattle
John Gibson	Member	Youth Sports Leagues
John Hervey	Transportation Supervisor	Charlie's Produce
Joe Huden	Project Director, Center for Regional Disaster Resilience	Pacific Northwest Economic Region
Dave LaClergue	Planner	City of Seattle
Pegi McEvoy	Asst. Super. for Operations	Seattle Public Schools
Leslie Smith	Executive Director	Alliance for Pioneer Sq.
Deborah Witmer	Commissioner	SCPWD
David Willard	Safety Program Manager	Metropolitan Improvement District

APPENDIX A: MEETING SUMMARIES

STAKEHOLDER WORKSHOP #3:**11/13/2012, 1 PM - 4 PM****SEATTLE UNIVERSITY, CHARDIN HALL**

The last of the three sessions conducted for stakeholder outreach, this workshop included a number of key stakeholders from the public, private, non-profit, and education sectors. As with the previous workshops, a general overview presentation of the recovery planning process was given by the consultant team to orient the workshop participants. Following this, participants were asked to participate in a “shared values” exercise that identified some of the key Seattle-specific principles around which a recovery plan could be developed. The second half of the workshop was dedicated to the identification of issues, strategies, and principal actors to address each issue and execute each strategy. Finally, a survey was completed at the end of the workshop.

Attendees:

Name	Title	Organization
Ed Barnes	Vice President, Operations	WA State Convention Center
Ryann Child	Commute Programs Assistant	Cascade Bicycle Club
Anna Constant	COO	Food Lifeline
Dennis Dwan	TV News Operations Manager	KOMO TV
Lorri Gifford	Recovery Planner	WA State Military Dept., EMD
Gary Gordon	Business Continuity Manager	The Boeing Co.
Juliette Hayes	Community Planner	FEMA Region 9
Jim Hutchinson	Catastrophic Incident Planner	WA State Military Dept., EMD
Tiffani Kaech	Director of Agency Relations	Food Lifeline
Robert Kaseberg	News Operations Supervisor	KOMO - TV
Betty Lunceford	Director, Telecommunications	Seattle Community Colleges
Lois Maag	Communications Strategic Advisor	Seattle Dept. of Neighborhoods
Elman McClain	Director, Public Safety	Seattle Central Community College
Mat McBride	Business Continuity Program Analyst	BECU
Elisa Miranda	Facilities Manager	El Centro de la Raza
Kristen Myers	Mitigation Planner	FEMA Region 10
Shalini Priyadarshini	Graduate Student	University of Washington
Joanne Quinn	Sr. Community Development Specialist	City of Seattle, Office of Housing
Eric Schinfield	Chief of Staff	Seattle Metro Chamber
Michael Sletten	Director, Campus Safety	Seattle University
Mark Solomon	Crime Prevention Coordinator	Seattle Police
Kathleen Southwick	Executive Director	Crisis Clinic
Lee Wood	Regional Director of Engineering	Fisher Communications

APPENDIX A: MEETING SUMMARIES

STAKEHOLDER WORKSHOP #4:

12/6/2012, 1 PM - 3:30 PM

SEATTLE DEPARTMENT OF PLANNING AND DEVELOPMENT, SMT 1974

This workshop was a focused roundtable discussion with several members of the Seattle Department of Planning and Development. The goal was to identify the concepts and themes of the recovery plan framework, including typical issues faced during long-term recovery, resilience concepts, and the recovery network – i.e., the importance of linking and leveraging multiple sectors and groups. Topics discussed included potential policy and regulatory challenges, and long-term recovery issues and questions, such as:

- Zoning: Goals / policies / regulations to help prevent redevelopment in hazard-prone areas
- Building code changes / updates
- Unreinforced masonry buildings: Pre-disaster mitigation
- Comp Plan: Can elements of resilience be included to address disaster recovery issues?
- Post-disaster permitting: E.g., streamlining permitting of priority facilities
- Relocation of displaced populations: E.g., temporary / permanent housing
- Concurrency: Coordination of planning w/ utilities, transportation, and land use
- Outreach: Messaging / communicating to the public the role of DPD and defining the roles of community based organizations in recovery

Meeting Discussion Summary

General comments

- Recommendations from a disaster recovery plan could inform the comprehensive plan
- Neighborhood plans can play a role in guiding post-disaster planning – for example, by identifying local priorities for sustainability, livability, aesthetics, and growth.
- Post-disaster permitting can be improved and expedited by using a pre-approved list of contractors for specific areas of expertise.
- A “mobile permit review” process – i.e., reviewing permits quickly on-site, similar to a program used in San Francisco – could help accelerate the rebuilding process.

- Build connections with other cities with similar hazard risks in advance to aid with planning
- Clarify coordination and issues between volunteers and paid staff roles; address “surge capacity” for employment in DPD, OEM, other critical departments.

What would improve post-disaster planning from the perspective of DPD?

- Develop a system to prioritize post-disaster redevelopment plans / projects
- Clarify and document permit review priorities to help recover community services such as child care and senior services more quickly
- Ensure access to adequate resources to assist with the redevelopment process as needed
- A more cohesive approach to dealing with hazard-prone areas pre-disaster (e.g., areas prone to landslides, liquefaction, and other possible consequences of a major disaster)
- More resources for addressing unreinforced masonry buildings pre-disaster
- Prioritization of common values – such as values that define how to rebuild “better”, more sustainably, more beautifully, etc.
- Recognize overlap between “response” and “recovery”; reduce duplication of efforts
- Utilize existing tools / plans to inform the recovery plan – e.g., policies that can be “imported” into the comp plan as needed

What are some needs from OEM's perspective to effectively plan/prepare for post-disaster recovery?

- Work with DPD closely to identify key issues and strategies to solve them
- Create a reimbursement strategy
- Ensure that plans or draft ordinances are in place to address temporary uses (temporary housing, parks, etc.), ensuring that there is space available, and in line with existing codes for temporary uses of buildings and land

Attendees:

Name	Title	Organization
Tom Hauger	Comp/Reg'l Planning Mgr.	Seattle DPD
Sandy Howard	Sustainability Strategist	Seattle DPD
Dave LaClergue	Urban Designer	Seattle DPD
Jon Siu	Principal Engineer	Seattle DPD
Erika Lund	Recovery Coordinator	Seattle OEM

Stakeholder Workshop #1 Results

SUMMARY OF KEY DISASTER RECOVERY PRINCIPLES:

COMMENT #	PRINCIPLE
1	Neighborhood-level resilience
2	Increased focus on equality / equity (inclusiveness)
3	Economic resilience
4	Transportation / Infrastructure
5	Speedy and smart
6	Pre-Planning / Strategic focus capacity
7	Cross-sector connections
8	Framing discussion on recovery
9	Scale and timeline (different issues at different times of recovery)
10	Personal resilience
11	Unity of effort
12	Quick access to capital and cash
13	Schools
14	Customized approach to economic players (e.g. small v. large business)
15	Operational resilience at the local level
	[Next table]
16	Leverage / engage neighborhoods for recovery efforts
17	Utilize cross-jurisdictional links / organizations that are already in place
18	Speedy recovery to build momentum and build public confidence
19	Two-way communication (between government and public)
20	Confidence building through tangible results
21	Citizen-empowerment to implement recovery – but with cohesion, oversight, connection to bigger recovery picture
22	Balance process and progress
23	Set expectations for recovery early (pre-disaster)
24	Clear communication w/ public: specify how, when, where redevelopment will occur
25	Build capacity of community organizations pre-disaster
26	Equitable method of citizen participation post-disaster (do not exclude those viewed as typically underserved)
	[Next table]

APPENDIX A: MEETING SUMMARIES

COMMENT #	PRINCIPLE
27	Public / private partnerships – communicate / share priorities
28	Unity and equity of outcome
29	Understand priorities of mid-term recovery
30	Individual empowerment: to recover, provide resources, provide connections
31	Centralized communication: clear/consistent; reach broadly into every sector
32	Use of media resources
33	Educate to be prepared and mobilized for recovery
34	Involve neighbors
35	Think mitigation and sustainability and integrate community pre/post-event
36	Inclusive process for recovery (cultural, language)
37	Adapting existing plans to post-recovery plans
38	Consider different kinds of “recovery” (e.g. personal v. city-wide)
39	Public / private sector provide resources to help people recover
40	Unity of effort
41	Create a survivor v. victim mentality
42	Core human needs: Shelter, food, etc. (Maslow’s hierarchy)
43	Crime is an obstacle: emphasize security and safety

Stakeholder Workshop #1 Results

ISSUES, STRATEGIES, AND CRITICAL ACTORS:

Issue	Recovery strategy	Who (Critical actors)
Permitting: DPD; SDOT Red tape	Consolidating process regionally; i.e. One stop shop (local, regional, state); Clearly communicate reasons behind permits that must be obtained; Expedite process	Emergency Executive Board (EEB); key City agencies; must include regional and state government as well
Economic: Unemployment Keeping people employed i.e. transportation issues	Design/build; Require percent of work is being done by locals; Access to longer term benefits Organize and address reason that map impact individuals ability to keep working; Develop methodology to establish what is best option	Regional policy makers; state, feds
Priority of projects Streamline/flexible guidance	Develop methodology and way to determine what projects will get best bang for buck Expedite inspection processes, e.g., public health inspections for restaurants	
Fueling/Supply	Utilize temporary capabilities	Petroleum industry; Environmental industry; Maritime industry; Health; Human services; Ports/DOD; Shipping industry
Steam Services	Alternative sourcing	
Housing	Relocate housing out of liquefaction areas; Zoning consideration; Break-out city/areas of levels of services; Non-profit housing resources; URM considerations	Historic preservation; Non-profit housing groups/organizations
Debris management	[Have a] plan in place	
Maritime/Freight	Marine transportation – USCG-they prioritize; Movement priority	Federal, State, Local
Building code variances and/or updates	Recognize need for variance in codes based on risk Land use planning prior to disaster Keep building character using new regulatory tools (e.g., form-based codes)	

APPENDIX A: MEETING SUMMARIES

Issue	Recovery strategy	Who (Critical actors)
Need for customization of recovery activities (partly due to equity issues)	Context-sensitive recovery “Zone-based” recovery plan for different categories of uses (housing, businesses) – i.e., what should go where based on hazard risk profile, for example	Consult federal models State
Concurrency (planning coordination between utilities, transportation, land use)	Joint approach with multiple actors to thoughtfully re-shape infrastructure systems	Utility providers Neighborhood leaders Volunteer organizations Churches Human service organizations
City-wide issues with allocation of resources post-disaster	Pre-disaster planning, including: Spatial analysis/mapping to help “democratize” the process of determining how resources are allocated – scenario-dependent; including a parametered/prioritization algorithm Understand inter-dependencies Keep objective, out of the realm of politics as much as possible	Seattle OEM: Interagency Biological Restoration Demonstration Program (IBRD) – for example (Path-aware) King County: HAZUS program (ESRI-based) NIAC program (FEMA / DHS)
Socio-economic inter-dependence	Utilize modeling data Engage stakeholders	Boeing SODO-employers Civic and County-based organizations
Public education re: disaster recovery, especially need to understand issues of personal or community responsibility in disaster recovery	Inclusiveness – solicit input on the plan from multiple stakeholder/community groups	Neighborhoods Businesses Government agencies
Disconnect between what neighborhoods and businesses want and City priorities	Early agreement on big issues like debris removal, structural rehabilitation De-centralized approach	Neighborhood organizations
Cash – distribution and access post-disaster	Relationships with financial institutions Using Federal seed money for mitigation	Banks DPD Community associations
Definition of “recovery”	Thinking about framing recovery as “resilience” (e.g. “resilience plan” v. “recovery plan”)	
It’s about the people	Social resilience	

APPENDIX A: MEETING SUMMARIES

Issue	Recovery strategy	Who (Critical actors)
Public safety	Build trust with the community; Maintain security and enforce the law; Preplan prioritization-anticipate criminal activity; Shelter in place by community and situate shelters in community	
Access the vulnerable populations	Identify those community leaders who have access; Pinpoint pockets of high concentration of vulnerable people; Push resources to support	
Resources (equipment, supplies, personnel, cash on hand)	Important to get the supply chain operational; Preplan a resilient infrastructure	
Expectations on recovery from the public	Conduct an open process; access public information from known points of communication; Explained by trusted leadership; Frame the measure of recovery; Disasters happen; It's not a failure; Connect vision	
Scope of the damage	Resilient systems design; Recover from damage; Must do risk reduction	
Issues with prioritization	Preplan based on risks and known points of vulnerability (know our weaknesses); Determine the focus that relates to the vision; Look at the systems approach flow of resource through the network and the relationships to those networks	
Getting to the vision and setting a timeline	Building a healthy relationship with communities; Identify the gaps in outreach; Connect resiliency to rebuild infrastructure, network	
Participation in recovery	Integrated into day to day planning; Talk to the players by framing recovery from their perspective and articulate the benefits; Define the role of government in recovery	

APPENDIX A: MEETING SUMMARIES

Issue	Recovery strategy	Who (Critical actors)
Relocation of displaced populations	Location of shelters in vicinity of this displaced population; Shelter in place bring resource to them	
Employment	Government program to keep small businesses employed by providing cash per employee; Keep footloose by creating incentives; Capitalize on the goodwill of the nation	
Housing recovery	Access to financial resources; Look at leveraging existing credits/waivers	
Small Business/large business	Create a sense of responsibility to be part of recovery; Access to financial resources	
Social services	Capitalize on the goodwill of the non-impacted populations and organizations; HSP directed outcomes provide directives; Provide continuity of operation of organizations	
Successful community based on the 'vision'	What does a prepared Seattle look like?	
Government leadership and contribution		
Mortality especially with vulnerable population		
Physiological impact		

APPENDIX A: MEETING SUMMARIES

Stakeholder Workshop #2 Results

SHARED VALUES EXERCISE

EQUITY & DIVERSITY

- Resource allocation will be stressed and we will need system for allocation.
- Compassion
- Equity
- Diversity
- Equity
- Support for those in need.
- Diversity
- Vulnerable populations will need extra support to get “equity”.
- Equity
- Diversity language; economic; cultural; gender; orientation.
- Access to what we need.
- Distribution of scarce resources.

COMMUNITY

- Neighborhood cooperation
- Community
- Protect Seattle “Character” – neighborhoods, landmarks, organizations.
- Neighborhoods feel overlooked
- Neighborhood orientation
- Neighborhood focus
- Different regions of city will have different needs.

INNOVATION

- Aim to be ‘cutting edge’.
- Rebuild smarter
- Get transportation and services back quickly
- Pride in technology
- Make it better than before
- Transportation
- We are smart.

PARTICIPATION & COMMUNICATION

- Over communicate
- Communication
- Access to timely and accurate information
- Good judgment
- Honesty
- Communication
- Access
- Choice
- Develop a consensus
- Process
- Decisiveness
- Most people will try to do ‘the right thing’
- Inclusiveness
- Participation
- Inclusive
- Have a say in the process
- Collaborative

ENVIRONMENT

- Environmental protection; restore ecological function
- Environmentally and ecologically sound

ECONOMIC VITALITY

- Business continuity
- Economic vitality
- Operate business
- Businesses will leave
- Commerce
- Schools need to ‘normalize’ before community can recover

APPENDIX A: MEETING SUMMARIES

Stakeholder Workshop #2 Results

Who	Issue	Recovery strategy	Who (Critical actors)
DPD	Unreinforced Masonry	Determine new code requirements and process required to implement	City, building owners, builders
"	Project & Permit Review	Have a plan in place; conduct reviews and inspections	City, building owners, builders
"	Land use policy; where to rebuild?	Think about how to prevent "unwise" development; how to help property owners	City, City Attorney, builders
Alliance for Pioneer Sq.	Long-term housing		
"	Public health & safety		
"	Business redeployment	Move off-site; remote access	
"	Keep outlying/adjacent neighborhoods from being overwhelmed		
"	Regional communication & transportation		
	Infrastructure: Power, Water, Transportation	Deal with infrastructure now	WSDOT, SDOT, utilities
	Logistics – Supply chain		
	Economic revitalization	Streamlined permitting in recovery scenario	Investors
Pacific NW Economic Region	Infrastructure (esp. Transp.)		
	Communication	Logical communication structure already in place	
State Council for Persons with Disabilities	Rebuilding infrastructure / buildings	Utilize universal design	Design experts, A/E consulting firms, mix of public and private actors
"	Accessibility at the forefront of consideration	Inclusion of people w/ disabilities ahead of time; accessibility considerations designed ahead of time	Vulnerable populations, NGO's, social service orgs
Port of Seattle	Critical infrastructure back up and running	Temporary facility concepts	USACE, Federal resources, USCG
	Business retention	Effective / fast response	Business groups, major firms in area
	Home preparedness (staff)	Staff develop home about systems of redundancy	
Charlie's Produce	Infrastructure, including roads, utilities, port facilities, railways; Fuel		Large economic players in the region; regional suppliers
	Economic redevelopment (customers)		Local chambers of commerce
John Gibson	Role of the community group network; Communications through community groups	Shelters/housing; communications	Community groups (incl. sports associations for communications and poss. accommodations)

APPENDIX A: MEETING SUMMARIES

Stakeholder Workshop #3 Results

SHARED VALUES EXERCISE

INDEPENDENCE/INDIVIDUALITY

- (Visitor) Independent
- Self Sufficient
- Independence
- Individuality
- I don't want to be inconvenienced, I am impatient "I want mine, dammit! And I want it now"
- Independence
- Want to help
- Progressive
- Leadership

EQUITY/DIVERSITY

- Protect Vulnerable Populations
- Community engagement; more specifically utilizing community leaders & organizations, clubs, chapters, etc. to engage the community in the process and relay important issues affecting the community.
- Humanitarian e.g. housing; care of disadvantaged; social services
- Diversity within communities
- Grassroots involvement
- Inclusion
- Including all ethnic groups
- Equity
- Safety net
- Diversity & inclusion important
- Program for safety of children and elderly
- Dignity
- Cultured & linguistic diversity
- Diversity
- Take care of needy and vulnerable population. E.g. low income housing; public health; case management

PROCESS/PUBLIC INVOLVEMENT

- Public Involvement
- Communication
- Communicate to the community
- Flexibility
- Consensus
- Mediators. City officials able to mediate collaboration and community efforts
- Want people to have a say/input; all voices have a chance to be heard
- Timely
- Accountability
- Don't want to be told what to do
- Collaboration
- Process
- Independent thinkers, but still strive for consensus
- Transparency
- Transparency
- Openness
- Lots of ideas
- Prior planning
- Collaboration important

NEIGHBORHOOD & OWNERSHIP

- Neighborhoods
- Neighborhood identification & centric
- Importance & diversity of neighborhoods
- Specific neighborhoods
- Neighborhood focused. Care more about my neighborhood, than someone else's.
- Small community based
- Human-scaled
- Property ownership
- Value of single family housing
- Neighborhoods
- Neighborhood uniqueness & community
- Community
- Support local business—large & small
- Love of location: Green Lake, West Seattle, & Phinney Ridge, etc.

APPENDIX A: MEETING SUMMARIES

- Organized around nodes. Similar interests, professions, etc.

ECONOMIC DEVELOPMENT

- (Visitor) High Quality of Life Expectations
- Livable income levels
- History
- Coffee lovers
- Arts
- Authenticity
- Pride of Seattle Heritage (lots of those born here have come back)
- Community Education – community-oriented education; effectively communicates resources

ENVIRONMENT

- Environment/ beauty of place
- Environmental concern
- Appreciation of the outdoors
- (Visitor) link to the outdoors
- Strong advocates for environment. Leader in LEED Seagreen, evergreen sustainable development standard

TRANSPORTATION / ACCESS

- Mass Transportation important
- Mobility about the city scape
- Mobility
- Public access/ transportation. Avenues to reach loved ones, reach the community, non-profit, social services, etc.
- Transportation
- Accessibility/Connectivity
- Innovation
- Cutting edge
- Opportunity
- (Visitor) Frontier “young” fresh approach to “old” problems.
- High-tech
- Availability of a technology web/net

Stakeholder Workshop #3 Results

ISSUES, STRATEGIES, CRITICAL ACTORS

Issue	Recovery strategy	Who (Critical actors)
Food Access: Supply chain interruptions deliveries; Risk Management/ Dealing with donations	Food Banks: using existing facilities and supplies; quick collection of perishables from commercial grocery stores	NW Harvest; Food Lifeline; Seattle Food Committee
Transportation: Fuel shortages; bridges; accessibility	Fuel storage location is safe and accessible; generators for fuel stations; bikes: 'infrastructure' bike repair, pre-planning/network planning	Transit agencies, SDOT, bike shops, transport nonprofits, marinas/maritime industries
Medicine: short to long term medical needs; adequacy of facilities and personnel; restoring our capacity and medical facilities	Use of other public facilities; Will moving people to other areas require other facilities?; Strategic relocation post disaster	
Power outages		
Connectedness/ Domino Effect (esp. economically)		
Shelter: clearing debris; location selection		
Rezoning: related issues of disrupting cohesiveness		
Rebuilding in threatened/unstable areas		
Environment clean up: quick fix verses long term approach		
Need for patience		
Knowing when to transition out of 'recovery' mode		
Contingency for fuel/ supplies/ food, etc.		
Options for ports, docks, etc.		
Accommodating employees at work if disaster happen while they're there		
COOP planning for businesses		
Getting paychecks		
IT infrastructure/long term outages and communication	Neighborhood level infrastructure and planning; HUBs/Info Centers let people know they exist; Pre-disaster Education and outreach (know where to go);	
	Make the system clear in advance (avoid chaos); Setting expectations and make sure people know how they'll be informed (e.g. when power will be restored)	

APPENDIX A: MEETING SUMMARIES

Issue	Recovery strategy	Who (Critical actors)
	Make the system clear in advance (avoid chaos); Setting expectations and make sure people know how they'll be informed (e.g. when power will be restored)	
Where will people turn?	SNAP/ block watch/ etc.; Inform and educate them now; Coordinating and clarifying the role played by public nodes; Mass communication methods	Informal leaders: Colleges, police station, fire department, landlords, building managers (esp. for renters)
Keep people here	Permitting process; restarting businesses, continuing care for injured/vulnerable, Communication by leadership (multiple sources, social networks, umbrella messages); Employment (work out of classifications, restart schools)	
Housing		
Transportation Utilities		
Public process around decision making	Relaxation of appropriate laws, neighborhood centric, NGO coordination, enable disaster planning in neighborhood plans; engage non-traditional players)	
Housing	Everybody but higher impact to more vulnerable; loss of stock (identify other options: location, type); maintaining / altering / relaxing regulatory policy to expedite housing (need to understand needs, money and regulations that come to play → coordinate upfront; Build upon existing strengths and processes (ensure space for all community advocates and mediators-neighborhoods (esp diverse cultures, color), CBOs); Include stakeholders throughout processes—planning / evaluating / updating; Build and support existing capacity in post-disaster partner organizations	Housing development consortium, HDC, AHMA, Housing search northwest organization
Stakeholder engagement	With limited resources, What is the value of participating? What is the expected contribution? Why is recovery planning important to 'me'? Why is recovery planning important to the organization?; work within existing relationships / mechanisms; Continuity over time; Opportunity to engage meaningfully in recovery from a distance, not in person	

APPENDIX A: MEETING SUMMARIES

Issue	Recovery strategy	Who (Critical actors)
Funding	Know what is out there, how to get it and how long it takes; What is needed locally; What mechanisms exist and are needed for disbursement; Where are the investors and how to guide development/investment (Where should the money go or what the parameters are i.e. recovery plan); Identify capabilities required to implement recovery plan and build resources (i.e. building inspectors, zoning officials, assessors, structural engineers / architects / construction)	
Mental Health	Additional 'work load' for CBOs who already have experience (train others, try to maintain faces/places); use recovery plan as a guide for community to create 'security'	
Communications: Lack of access to information: technical, cultural, social	Establish good sources of information ahead of time; expand hubs expand to recovery establish trusted sources	
Big financial decisions: many firms decide whether to stay/leave early on without complete information; once they have left hard to get back	Relaxed regs for micro lending (reduce time to get funds to small business); have equity component to this; bridge downtime; encourage continuity planning; insurance products; government pass-through with employee req. to do community service; 'Allcoa', Skills/resource brokering "Craigslist for disaster"	
Plan scalability	All disasters are local; Break down planning by district; Build a process to change plan; Build on existing groups	
Getting back to normal	What represents normal? Rituals, social activities; Help people accept loss and move to new normal	
Preparedness of businesses	Pre-endorsement of microloan	
Rebuilding in ecological way		
Land use issue		
Having existing codes kick in on pre-existing buildings (Example: EPA/rivers)		
What is redevelopment idea in neighborhood plans?		

APPENDIX B: SURVEY RESULTS

Workshop Survey Results – Key Insights

“What was the most important insight that came out of today’s workshop?”

WORKSHOP #1

- Great choice on contractor
- Presentation was good
- Recommendation of Gavin Smith’s book
- Building resiliency
- Teaching community about how to be survivors rather than victims is a key element to recovery
- Broadly different levels of understandings of disaster recovery planning exist among city staff
- Sharing clear info with community in advance; Manage people’s expectations in advance; Nothing can happen without transportation issues resolved first
- Deliberate planning and zoning now for recovery after the catastrophic event
- Iterate quantitative/analysis with engagement and inclusiveness
- Need to plan, present to community, modify
- Need objective method to prioritize recovery efforts (geographically)
- Need to identify community & business leaders to agree a-priori to participate in decision-making

WORKSHOP #2

- The diversity of needs after a disaster and challenge of limited resources.
- Recovery is another animal for response (which is what I have been focusing on up to now). It is almost more important to have public/private/NGO partnerships in recovery phase.
- What I don’t know about business continuity plans for the neighborhood.
- DPD doesn’t just need to think about how to handle permit volume after a disaster, but also how to prioritize: schools, community centers, shelters, and medical facilities.
- I love the ecology model- will you share your presentation?
- Think, then implement plans and processes to reduce recovery time after disasters.
- We are unprepared for a disaster of this scope.

WORKSHOP #3

- That the city is starting a recovery process.
- There are so many businesses, CBO’s, volunteer organizations and government- already involved in disaster response. This effort needs to build on what they are doing. Don’t make this a “new” effort. So much work and planning is already underway.
- Great group effort
- Lots of animated discussion
- Seattle’s taking the lead
- Identifying core values of the city was great!
- Understand where the money will come from (e.g. FEMA) and what will and won’t be paid for. Therefore what gaps will need to be filled.

APPENDIX B: SURVEY RESULTS

- We have a lot of work to do. Much of it is preparedness, mitigation, education so that response and recovery will go smoother.
- Pre-communication on what to do and where to go is key.
- Recovery planning is huge! So much to think about, work through and so many partners to be engaged.
- That many CBO, NGO, and city of Seattle here started planning and have plans. Our private business has started the process in planning for a disaster recovery. This is something new at our company and is good to see we are planning along with other agencies.
- Be proactive. There's a lot of infrastructure that can be put in place to make recovering easier /fast / cheaper.
- Tons of existing resources- identify them
- Learn by example i.e. Sandy and bicycle was used to get around when traffic is jammed and forcing fuel shortages.
- The reminder that all disasters are local and that planning for response and recovery efforts have to occur at the neighborhood level to be effective to the individuals affected.
- Contingency planning as an outgrowth of neighborhood plans.
- It would be helpful to know more about City of Seattle Office of Emergency Management structure.
- Enthusiasm
- Awareness of need and opportunities
- Leadership at grassroots level
- This is actually being done! Excellent!
- Networking; Resilience!

APPENDIX C: EXISTING DOCUMENTATION REVIEW

City of Seattle Disaster Recovery Plan Framework

Existing Documentation Review

SUMMARY OF EXISTING DISASTER-RELATED PLANS, GUIDELINES, AND STANDARDS

The City of Seattle has begun the process of creating a comprehensive Disaster Recovery Plan. As part of the initial effort to develop a scope and framework for this plan, a review and summary of existing disaster-related documents, guidelines and other relevant materials from local, regional, and national sources was completed. As the following sections illustrate, there are numerous written documents and programs that address the four phases of emergency management (i.e. mitigation, preparedness, response and recovery) to varying degrees. The plans, guidelines and standards highlighted below will help shape the content and structure of the eventual City of Seattle Disaster Recovery Plan.

SEATTLE DOCUMENTATION

Title	Latest Update	Purpose
Seattle Disaster Readiness and Response Plan (DRRP)	Main Plan, ESF Annexes, Earthquake Annex (2012); Snowstorm Annex (2011); Support Annexes (2007).	Provides the main foundation for emergency response, preparedness, recovery and mitigation in the City of Seattle.
Seattle Hazard Identification and Vulnerability Analysis (SHIVA)	2010	A summary and analysis of all potential danger sources in Seattle, both natural and man-made. Fulfills FEMA, EMAP and state-mandate hazard identification requirements.
Seattle All-Hazards Mitigation Plan	2009	A comprehensive effort to describe mitigation efforts across City departments and to develop an integrated mitigation strategy, with an emphasis on mitigation for city-owned and operated facilities and infrastructure.
Seattle City Light Continuity of Operations Plan – Recovery Annex	2011	Provides policies and procedures for Seattle City Light’s short- and long-term recovery from a catastrophic event.

APPENDIX C: EXISTING DOCUMENTATION REVIEW

REGIONAL DOCUMENTATION

Puget Sound Regional Catastrophic Disaster Coordination Plan	2011	Provides an all-hazards framework for coordination among local, State, Tribal and Federal entities prior to, during, and following a catastrophic incident in the Puget Sound Area. The plan assists in planning for, responding to and recovering from (both in the short- and long-term) regional catastrophic incidents.
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FEDERAL DOCUMENTATION

National Disaster Recovery Framework (NDRF)	2011	A framework created by FEMA that provides a flexible structure that enables disaster recovery managers to operate in a unified and collaborative manner to address both short- and long-term recovery strategies. Addresses recovery principles, roles and responsibilities, coordinating structures, and planning guidance.
Emergency Management Accreditation Program (EMAP)	2010	A voluntary review and accreditation process for state and local emergency management programs.
Americans with Disabilities Act (ADA) Toolkit, Chapter 7	2007	A guidance document produced by the Justice Department that provides general guidelines to aid with ADA compliance in the provision of emergency management programs and services.

A number of agencies, committees, and teams at various levels of government are involved in disaster readiness, response, and recovery planning. Many of these organizations exist to fulfill local, state, and federal mandates related to emergency management. A selected list of these groups is provided below, both for the sake of context and as a source for identifying future parties to assist in the development of Seattle's Disaster Recovery Plan.

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RELEVANT AGENCIES, COMMITTEES AND OTHER GROUPS

Name	Level	Description / Function
Seattle Office of Emergency Management (OEM)	City	The primary City of Seattle department responsible for organizing and planning disaster response and recovery efforts.
Disaster Management Committee (DMC)	City	<p>A committee mandated by SMC 10.02.060 to</p> <ol style="list-style-type: none"> 1) Advise the Mayor on all matters pertaining to disaster readiness and response, 2) Review and make recommendations for disaster related plans, 3) Provide cooperation and coordination with the disaster response plans of other local organizations and agencies, 4) Prepare and recommend plans for mutual aid operations, and 5) Recommend expenditures for disaster preparations and training. <p>The Director of OEM acts as the appointed Chair of the DMC, with additional members representing all City of Seattle departments. Outside organizations and agencies such as King County Metro, Puget Sound Energy, Seattle Public Schools, and others regularly participate in the DMC and provide input.</p>
Disaster Management Committee Strategic Working Group (SWG)	City	A sub-group within the DMC, representing various City departments, that is responsible for development of the Seattle DRRP, associated annexes, procedures and other plans as needed.
Emergency Executive Board (EEB)	City	The EEB, convened quarterly for training and policy discussion practice, and as needed during disasters, is composed of department Directors and Mayor's Office senior staff. It advises the Mayor on policy issues related to emergencies, takes steps to improve coordination between departments, modifies response priorities and supports resource allocation.
Regional Catastrophic Planning Team	Puget Sound Region (Multiple Counties)	A group formed to guide and manage the Puget Sound Regional Catastrophic Preparedness Grant Program funded by FEMA. Includes representatives from agencies in Island, King, Kitsap, Mason, Pierce, Snohomish, Skagit, and Thurston counties.
Emergency Management Assistance Compact	National	A mutual aid system that allows all 50 states to send personnel, equipment, and commodities to help disaster relief efforts in other states.
Pacific Northwest Emergency Management Arrangement	International (US and Canada)	An agreement among Alaska, Idaho, Oregon, Washington, British Columbia, and the Yukon Territory to share resources and support during emergencies, particularly those that may cross state, provincial or international borders.

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CITY OF SEATTLE AND REGIONAL PLANS

SEATTLE DISASTER READINESS AND RESPONSE PLAN (DRRP)

The Seattle Disaster Readiness and Response Plan (DRRP) is prepared by the Office of Emergency Management (OEM) in collaboration with the City's Disaster Management Committee (DMC). The DRRP acts as "the principal document for explaining how the City of Seattle government will engage its collective resources to respond to a major incident or disaster." The latest revision and adoption of the Plan occurred in 2007, while a 2012 update is in the final stages of completion and serves as the basis for the summary information contained below. This latest update adds a number of substantive changes, including recognition of Americans with Disability Act (ADA) guidelines and a shift towards a "Whole Community" approach (i.e. planning for emergencies with the community not for it).

The DRRP is structured around four primary components: the main body of the Plan, Emergency Support Function (ESF) Annexes, Support Annexes, and Incident-Specific Annexes, which are described below.

DRRP Summary

Key Policies

- RCW 38.52.070 authorizes jurisdictions in Washington to establish emergency management programs and appoint a local emergency management director.
- SMC 10.02.050 authorizes the Office of the Mayor to direct emergency management programs and planning under the approval of the City Council.
- SMC 10.02.060 assigns ongoing responsibility of the emergency management program to a Disaster Management Committee (DMC) and its Chairperson which serves at the appointment of the Mayor.

Situation

The "situation" that acts as the basis for forming the DRRP includes the emergency conditions and hazards that are present locally and a set of assumptions that serve as the basis to guide planning.

Preparedness

The City of Seattle has adopted the National Incident Management System (NIMS) as a guiding framework for its emergency management program. Based on NIMS the City identifies five components that it embraces to pursue a "continuous cycle" of preparedness: planning; organizing and equipping; training; exercising; and evaluation and improvement.

Concept of Operations

A wide variety of "incidents" require response by the City of Seattle and its partners, such as natural disasters, hazardous material spills, terrorist attacks, civil unrest, and numerous other circumstances that require an emergency response. The Concept of Operations, which explains how the City will respond to an incident, contains four key actions:

- Gain and Maintain Situational Awareness
- Activate and Deploy Resources
- Coordinate Response Actions – The City uses the Incident Command System (ICS) to guide how it responds to incidents.

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- Demobilize – Depending on the resource involved, standard ICS procedures for demobilizing field resources or existing department policies and procedures are followed.

Direction and Control

This section identifies the role of the Mayor, the process for resolving policy issues and other problems during an emergency, the role of the Emergency Executive Board (EEB), and the issuance of emergency orders under a “Civil Emergency” proclamation. In addition, the Direction and Control Section of the DRRP describes the organization of Seattle’s Emergency Operations Center (EOC).

Coordination of Information

This section reviews the elements for the successful coordination of information following EOC activation, including:

- The role of the EOC Director in providing situational briefs to EOC staff
- Meetings among ESF representatives, as needed, during any operational period
- Reports to be produced by the EOC Planning Section following EOC activation: ISnap initial situational awareness report, short and concise Snapshot Reports released throughout the operational period, and comprehensive Situation Reports issued every 6 to 12 hours.
- The role of the City WebEOC system to document information during an incident
- Distribution of public information via the Joint Information Center

Communications

The DRRP explain the system of communication methods employed during an emergency, including guidelines for use, limitations, and availability. These communications include: 800 MHz radio, other radio systems, telephone, mass notification systems, pagers, and email.

Logistics

This section of the DRRP discusses department responsibilities, specialized resource ordering, non-medical logistical support to healthcare providers, the responsibilities of the EOC Logistics Section, and regional/state/federal assistance.

Resource requests that cannot be fulfilled by the City of Seattle EOC are forwarded to the King County Emergency Coordination Center. Any requests that remain unfulfilled after County involvement are sent to the State EOC. Finally, the State EOC can pass unfulfilled resource requests to the Emergency Management Assistance Compact (EMAC) or the Pacific Northwest Emergency Management Arrangement (PNEMA), which provide the legal framework and procedures for resource provision among U.S. States, or Canada, as needed.

Administration and Finance

When the City EOC is activated a mission number is obtained from the State EOC and attached to all documentation produced during an incident. The City EOC has a process in place to retaining all pertinent records during an incident, such as situation reports, requests for assistance, and email communications. Consistent and extensive documentation is essential throughout an incident, particularly for expenses and obligations that may be eligible for later reimbursement under Federal programs.

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Plan Development and Maintenance

The organization of the DRRP is based on two documents: *FEMA's Comprehensive Preparedness Guide 101- Developing & Maintaining State, Territorial, Tribal & Local Government Emergency Plans* and the *Washington State Supplement to Comprehensive Preparedness Guide 101*.

The Strategic Working Group (SWG) within the Disaster Management Committee is responsible for development of the SDRRP, associated annexes, procedures and other plans as needed. The Seattle Office of Emergency Management (OEM) is responsible for facilitating plans reviews and arranging updates. Substantive changes and new revisions to the DRRP are reviewed by OEM staff, the DMC, and the Law Department. After the DMC votes to approve the Plan it is reviewed and approved by the Mayor, followed by City Council review and adoption.

Emergency Support Function (ESF) Annexes

The DRRP's fourteen **Emergency Support Function (ESF) Annexes** describe specific functions related to emergency management and provide "prescriptive guidance for directing, controlling and employing them." Each ESF has a department or agency that is assigned primary responsibility, as noted next to each title below, and presents information according to a standard structure that includes:

- I. Introduction: Purpose and Scope
- II. Situation and Assumptions
- III. Concept of Operations: Organization; General Response; Direction & Control; and Procedures.
- IV. Responsibilities: (1) Prevention & Mitigation Activities (2) Preparedness Activities (3) Response Activities (4) Recovery Activities.
- V. Resource Requirements: Logistical Support; Communication & Data
- VI. Administration

In general, most of the 14 ESF Annexes focus on preparedness and response without addressing recovery in any significant detail, especially the long-term recovery needs created by a major emergency or disaster. While ESF-14 specifically covers long-term recovery, it is still only an annex to the larger DRRP, thus limiting its ability to be comprehensive in addressing recovery. The fourteen ESF annexes are listed below, with the primary responsible agency listed for each; additional detail is provided for ESF-14, given its focus on short- and long-term recovery:

- ESF-1: Transportation; SDOT.
- ESF-2: Communications: Department of Information Technology.
- ESF-3: Public Works and Engineering; Seattle Public Utilities.
- ESF-4: Firefighting; Seattle Fire Department.
- ESF-5: Emergency Management; Seattle Police Department/OEM.
- ESF-6: Mass Care, Housing and Human Services; Human Services Department.
- ESF-7: Resource Support; Fleets and Facilities Department, Executive Administration Department, and Personnel Department.
- ESF-8: Public Health and Medical Services; Seattle & King County Public Health.
- ESF-9: Search and Rescue; Seattle Fire Department.
- ESF-10: Oil and Hazardous Materials Response; Seattle Fire Department.
- ESF-12: Energy; Seattle City Light.

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- ESF-13: Public Safety and Security; Seattle Police Department.
- ESF-14: Long-Term Community Recovery; Department of Finance.
- ESF-15: External Affairs; Mayor's Office.

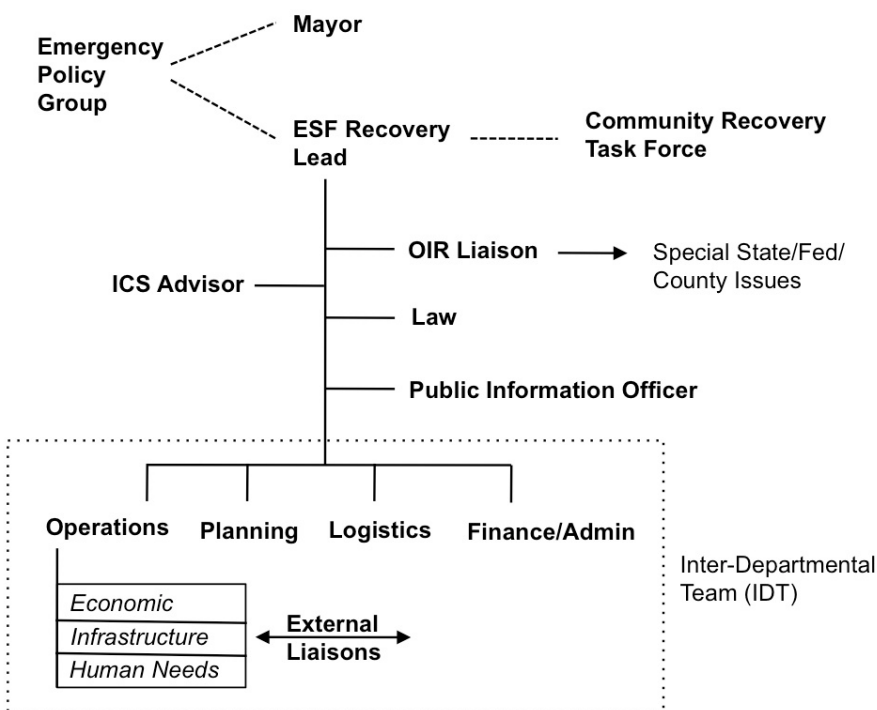
ESF-14: Long-Term Community Recovery; Department of Finance.

ESF-14: Long-Term Community Recovery and Mitigation Annex provides a basic decision-making framework that addresses the anticipation of resource needs; identifies procedures, roles and responsibilities for city departments; describes strategies and policies to guide recovery efforts; and informs the process of interacting with external partners.

The Annex is focused on three functional areas of recovery: economic, infrastructure, and human needs. Economic recovery tasks include financial impact assessment, revenue forecasting, small business outreach, coordination with major industries and employers, and others. Infrastructure recovery tasks include damage assessment, restoration of facilities and utilities, building permitting, and others. Human needs recovery tasks include housing assistance, public health issues, service to vulnerable populations, and others.

ESF-14 takes into account both short-term recovery (e.g. immediate restoration of services, damage assessment, etc.) and long-term recovery (e.g. repair of infrastructure, redevelopment planning, etc.). Because the nature and duration of each emergency or disaster scenario is unique, the Annex does not provide specific timelines for recovery, but rather, focuses on providing a framework for recovery decision-making and implementation.

The structure of recovery operations will be based on the National Incident Management System (NIMS) to the extent possible, and includes positions as illustrated in the diagram below. In addition, ESF-14 identifies specific responsibilities each City of Seattle department.



Recovery Operations Organizational Chart (Adapted from EFS-14 in the Seattle DRRP)

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Support Annexes

The DRRP contains five **Support Annexes** that provide guidance on specific disaster response topics. They apply to all City departments and are used to varying degrees depending on the nature and severity of an emergency.

- **Military Support:** Describes the circumstances under which units of the Department of Defense (DOD) and the Washington National Guard (WNG) can provide defense support of civil authorities (DSCA) and explains how the City of Seattle goes about obtaining DSCA.
- **Public Warning Support:** Provides a common standard for City departments to follow with regard to activating emergency essential employees, notifying the Mayor and City officials, and warning the public of immediate dangers during an emergency.
- **Continuity of Government (COG) and Continuity of Operations (COOP) Support:** Establishes guidance that will enable the City of Seattle government and staff to continue to effectively operate in times of a major incident, disaster, or catastrophe.
- **Training and Exercise Support:** Explains how OEM staff will be trained to maintain their professional development and readiness, as well as how the City will perform exercises to identify issues and implement improvements in its emergency management program.
- **Evacuation Support:** Describes possible evacuation routes from and through the City of Seattle, as well as how evacuations would be planned and executed.

Incident-Specific Annexes

The final element of the DRRP contains five **Incident-Specific Annexes**. They address incident types and hazards that are of particular concern to the City (i.e. due to frequency of occurrence or the magnitude of potential impacts) or pose unique challenges that require specific attention. These Annexes include:

- Pandemic Influenza
- Earthquakes
- Snowstorms
- Cyber Incidents (considered sensitive – not released to the public)
- Terrorism (considered sensitive – not released to the public)

SEATTLE HAZARD IDENTIFICATION AND VULNERABILITY ANALYSIS (SHIVA)

The 2010 Seattle SHIVA is a comprehensive revision of earlier documents prepared by the Office of Emergency Management in collaboration with partner agencies and departments. The main purpose of the SHIVA is to identify all of the hazards that may impact the City of Seattle.

According to the SHIVA, “a hazard may be broadly defined as a source of potential danger or adverse condition... something that has the potential to be the primary cause of an incident...” (SHIVA, p. 16). The document focuses on five hazard groups:

- **Geophysical:** Earthquakes, landslides, tsunamis/seiches, and volcanic eruptions/lahars
- **Disease Outbreaks**
- **Intentional hazards:** Civil disorder, terrorism, and active shooter incidents
- **Transportation and infrastructure:** Transportation incidents, fires, hazardous material incidents, power outage, and infrastructure failures.

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- Weather: Excessive heat, floods, snow/ice storms, water shortages, and wind storms
- The SHIVA is structured around three primary components: (1) an analysis and evaluation (i.e. the Ranking Model), (2) a community profile, and (3) individual sections dedicated to each of the specific hazards.

The Ranking Model uses a set of 13 parameters, listed below, to compare the potential hazards.

- *Base Parameters:* Geographic Extent, Duration, Environment, Health Effects (Deaths and Injuries), Displacement and Suffering, Economy, Built Environment (Property, Facilities and Infrastructure), Transportation, Critical Services (i.e. Continuity of Operations and Responders, Confidence in Government)
- *Multiplier Parameters:* Frequency and Cascading Effects
- *Future Emphasis Parameter*

OEM staff and the Emergency Management Strategic Working Group assigned parameter values for all 18 hazards in two different scenarios – Most Likely and Maximum Credible. The scenario score for each hazard in each scenario is computed as:

*[Average Base Parameter Value] * [Multiplier Parameter].*

The combined score for each hazard is the sum of its Most Likely Scenario score, Maximum Credible Scenario score, and Future Emphasis score. The list below shows the top 10 hazards, based on the Ranking Model, and their respective combined scores.

1. Earthquakes (55.7)
2. Snow and ice storms (46.2)
3. Windstorms (44.9)
4. Terrorism (44.6)
5. Transport Incidents (40.1)
6. Power Outages (39.1)
7. Fires (37.5)
8. Infrastructure Failures (35.3)
9. Flooding (35.3)
10. Disease Outbreaks (32.5)
11. Water Shortages (30.6)

The SHIVA ranks earthquakes as the top hazard of concern, largely as a result of its scores in the Maximum Credible Scenario. While earthquakes occur relatively infrequently compared to many other hazards, they have the potential to cause widespread damage, cripple infrastructure, and interrupt the everyday lives of all Seattle residents. By comparison, snow and ice storms (ranked second among all hazards) may produce less physical and long-term damage but they occur relatively frequently, can last for extended periods of time, and impact large geographic areas. The same is true of windstorms, the hazard ranked third in the SHIVA model. As the City of Seattle advances in its recovery planning effort these top-ranked hazards will likely serve as focal points for discussion and consideration.

Following the ranking of hazards, the SHIVA presents a comprehensive Community Profile that covers a wide range of topics to describe conditions in the city of Seattle. It addresses the following:

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- Physical Geography: Location, landforms, geography and climate
- Population and Economy
- Land Use
- Transportation
- Utilities
- Media
- Emergency Services
- Healthcare and Human Services
- Structures

Finally, the SHIVA dedicates a chapter to each of the 18 identified hazards. Each of these hazard chapters follows a standard format that includes Key Points, the Nature of the Hazard, History, Likelihood of Future Occurrence, Vulnerability, Assessment and Conclusion.

SEATTLE ALL-HAZARDS MITIGATION PLAN

The Seattle All-Hazards Mitigation Plan addresses mitigation efforts across the city and offers an “integrated mitigation strategy,” with particular focus on infrastructure and facilities owned by the City of Seattle. After recapping information contained in the SHIVA, the All-Hazards Mitigation Plan focuses on the City’s current mitigation capacity, including departmental information on mitigation accomplishments. The other major component of the Plan is a set of updated mitigation goals and objectives (i.e. the Mitigation Strategy), as well as plans for monitoring, evaluating and updating.

In essence, the Mitigation Plan lays out actions that can eliminate or reduce hazard vulnerabilities and potential impacts. Mitigation, when successful, can reduce the effects experienced as the result of an emergency, such as lower recovery costs, fewer injuries and fatalities, and the faster resumption of normal economic activity. In many cases, mitigation focuses on physical activities implemented through individual projects, such as seismic retrofits in a building or improvements to stormwater retention systems in a flood-prone neighborhood. Mitigation can also involve more systemic changes, such as reviewing and altering the location of certain land uses across the city (e.g. discouraging development in areas with seismically unstable soils).

The All-Hazards Mitigation Plan identifies four basic goals, listed below, and numerous objectives for each goal (abbreviated here for the sake of brevity).

- *Protect public health and safety:* Partner with agencies that serve vulnerable populations, improve disaster warning systems, etc.
- *Safeguard critical public facilities and infrastructure:* Formalize best practices for protecting systems and networks, consider known hazards when siting new facilities, etc.
- *Protect public and private property:* Promote mitigation of historic buildings, integrate new hazard and risk information into building codes and land use planning mechanisms, etc.
- *Maintain Seattle’s economic vitality:* Educate businesses about contingency planning, partner with the private sector to promote structural and non-structural hazard mitigation, etc.
- The All-Hazards Mitigation Plan concludes by offering a four-part strategy.
 - » *Part 1: Long Term Directions* A suggestion of four possible directions, including (1) Integrating hazard mitigation into the City’s Comprehensive Plan (2) Integrate hazard mitigation into departmental evaluation methods used during capital planning (3) Promote inter-departmental

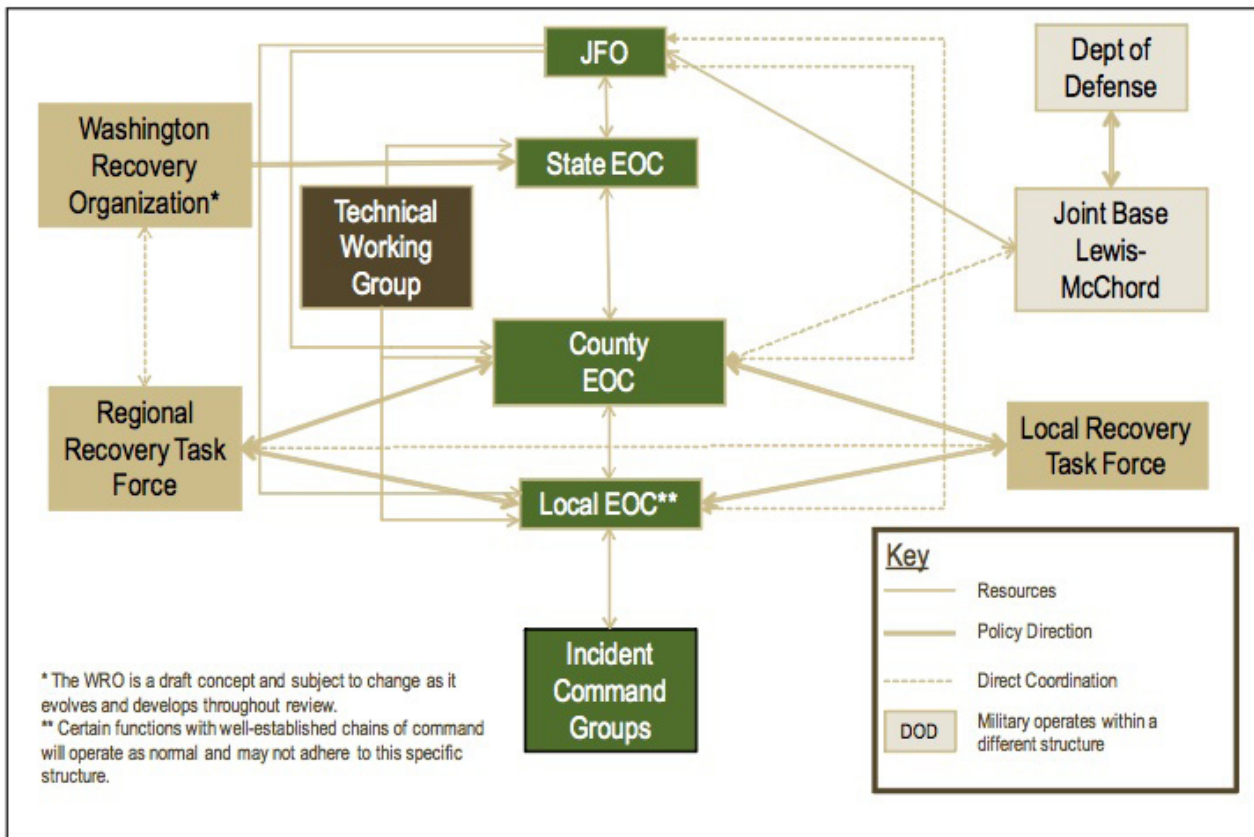
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- hazard planning efforts based around specific topics (4) Integrate hazard mitigation into departmental repair and recovery planning and projects.
- *Part 2: Proposed Planning and Policy Actions*
 - » Action A-1: Conduct vulnerability analysis of shelters and traditional housing serving vulnerable populations.
 - » Action A-2: Provide contingency planning technical assistance for agencies serving the general public and vulnerable populations.
 - » Action A-3: Complete study cataloging Seattle's unreinforced masonry buildings.
 - » Action A-4: Update city hazard maps with new liquefaction, earthquake-triggered landslide, seismic ground motion and tsunami/seiche inundation data from USGS, and NFIP flood mapping – particularly as it relates to urban flooding
 - » Action A-5: Use SPU records, technical data and GIS to create maps that capture the boundaries of recent localized flooding along the Thornton, Pipers and Longfellow Creek basins, to include other problems areas such Densmore, Aurora/Licton Springs, Midvale, South Park, etc.
 - » Action A-6: Update Seattle Hazard Identification & Vulnerability Analysis (SHIVA).
 - *Part 3: Proposed Capital Project Actions.*
 - » Action B-1: Complete the four landslide mitigation projects identified and prioritized by the city's interdepartmental landslide team.
 - » Action B-2: Complete seismic upgrade of Queen Anne Community Center. This is a Tier 1 Congregate Shelter Site.
 - » Action B-3: Seismically upgrade 6 community centers that have been designated as Tier 1 Congregate Care Facilities
 - » Action B-4: Seismically retrofit or rebuild to current seismic standards 32 fire stations and emergency facilities and support other fire mitigation projects.
 - » Action B-5: Implement Phase II Bridge Seismic Retrofits.
 - » Action B-6: Areaways restoration (Areaways are usable space constructed under sidewalks between the building foundation and the street wall).
 - » Action B-7: Rebuild Emma Schmitz and Viaduct Seawalls to halt deterioration and improve resistance to erosion and earthquakes.
 - » Action B-8: Build out alternate data center site to support City of Seattle Continuity Plans for critical city IT systems
 - » Action B-9: Implement technology to routinely inventory installed non-Microsoft applications to determine counter measures to cyber attacks
 - *Part 4: Current/Planned Capital Projects.* Table 4-2 in the Plan outlines projects that were planned or underway as of 2009.

PUGET SOUND REGIONAL CATASTROPHIC DISASTER COORDINATION PLAN

The Puget Sound Catastrophic Disaster Coordination Plan addresses coordination during all phases of emergency management required by a catastrophic disaster, from pre-disaster planning through long-term recovery. The Plan's author, the Regional Catastrophic Planning Team, was formed to guide and manage the Puget Sound Regional Catastrophic Preparedness Grant Program funded by FEMA.

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Puget Sound Urban Area Strategic Initiative - Interagency Biological Restoration Demonstration Program structural diagram

In terms of recovery, the Coordination Plan outlines the roles to be played by the proposed Washington Restoration Organization (WRO) and potential Regional Recovery Coordinating Committees. The diagram below, based on the Puget Sound Urban Area Strategic Initiative (UASI) Interagency Biological Restoration Demonstration Program (IBRD), illustrates how coordination may be structured during recovery efforts.

DEPARTMENTAL PLANNING (ONGOING)

The Seattle Department of Transportation (SDOT) has begun discussion about how to structure itself around the NDRF during a recovery effort. In this preliminary work, SDOT has drafted organizational charts to meet long-term recovery needs.

In 2011 Seattle City Light published a Recovery Annex to its Continuity of Operations Plan (COOP) to provide recovery policies and procedures in the event that a catastrophic event damages its capability to deliver power. The Recovery Annex is intended to complement the Seattle DRRP and closely embraces the National Disaster Recovery Framework.

FEDERAL PLANNING DOCUMENTATION

NATIONAL DISASTER RECOVERY FRAMEWORK (NDRF)

The NDRF, released by FEMA in September 2011, provides “guidance that enables effective recovery support [from the federal government] ...provides a flexible structure that enables disaster recovery

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managers to operate in a unified and collaborative manner...and focuses on how best to restore, redevelop and revitalize the health, social, economic, natural and environmental fabric” of a community during any Presidentially-declared major disaster. The NDRF, which replaces Emergency Support Function 14 of the National Response Framework, is one of five national planning frameworks called for under Presidential Policy Directive 8: National Preparedness to comprehensively address emergency management in the United States. The five frameworks include:

- National Response Framework, Published 2008
- National Disaster Recovery Framework, Published 2011
- National Prevention Framework (currently in working draft)
- National Mitigation Framework (currently in working draft)
- National Protection Framework (currently in working draft)

The NDRF acts as a “concept of operations” that can be used for any incident that has recovery implications, whether Presidentially-declared or not. It does not address short-term response actions (e.g. life-saving, property protection, etc.), though it does include tools for early integration of recovery considerations into response efforts. The NDRF defines five primary components of disaster recovery: principles, roles and responsibilities, coordinating structure, planning, and process, detailed below.

- **Principles**

- » Individual and family empowerment
- » Leadership and local primacy
- » Pre-disaster recovery planning
- » Partnerships and inclusiveness
- » Public information
- » Unity of effort
- » Timeliness and flexibility
- » Resilience and sustainability
- » Psychological and emotional recovery

- **Roles, Responsibilities and Leadership:** The NDRF identifies the roles and activities performed by individuals and households, the private sector, the non-profit sector, and local, state government, tribal and federal governments related to recovery. Recommended roles and activities for each party is specifically addressed in Appendix B of the NDRF.

Of note is the NDRF’s introduction of three new conceptual leadership positions: Federal Disaster Recovery Coordinator (FDRC), State Disaster Recovery Coordinator (SDRC), and Local Disaster Recovery Manager (LDRM). The NDRF describes pre- and post-disaster recovery responsibilities for each of these leadership roles. Notably, according to the NDRF, the local government has the primary role of planning and managing all aspects of the community’s recovery.

The LDRM acts as the primary point of contact with the State during pre-disaster recovery preparedness, coordinates and leads development and exercising of the local disaster recovery plan, and communicates recovery priorities to State and Federal governments, among other roles.

- **Recovery Support Functions (RSFs):** The RSFs represent the coordinating structure for key functional areas of assistance during preparedness, response and recovery phases. They help facilitate the identification, coordination and delivery of Federal assistance needed to supplement

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recovery resources and efforts by local and State governments, as well as the private and nonprofit sectors. The six RSFs, listed below, each have an identified federal agency responsible for coordination, as well as a mission, function, and services that fall under its scope.

- » Community Planning and Capacity Building; FEMA and Department of Homeland Security.
- » Economic; Department of Commerce.
- » Health and Social Services; Department of Health & Human Services.
- » Housing; Department of Housing & Urban Development.
- » Infrastructure Systems; Department of Defense and U.S. Army Corps of Engineers.
- » Natural and Cultural Resources; Department of the Interior.

It is important to reiterate the basic intentions underlying the NDRF: to *“describe[s] the concepts and principles that promote effective Federal recovery assistance”* and *“define[s] how Federal agencies will more effectively organize and operate to utilize existing resources to promote effective recovery and support States, Tribes and other jurisdictions affected by a disaster.”* It exists to guide Federal agencies and their interactions with State and Local governments when addressing the issue of recovery, both before and after an emergency. Notably, the NDRF does little to provide prescriptive requirements for local jurisdictions. As such, the City of Seattle retains a large degree of autonomy to address recovery as it sees fit, while still complementing the NDRF and the concepts it contains.

EMERGENCY MANAGEMENT ACCREDITATION PROGRAM (EMAP)

EMAP is a *“voluntary review process for state and local emergency management programs... created by a group of national organizations to foster continuous improvement in emergency management capabilities.”* EMAP is also an independent, non-profit organization whose purpose is to foster excellence and accountability in emergency management and Homeland Security programs with credible, peer-reviewed standards. All EMAP accredited programs must address prevention, preparedness, mitigation, response and recovery. More specifically, the recovery plan or strategy developed by the jurisdiction must *“address short- and long-term recovery priorities and provide guidance for restoration of critical functions, services, vital resources, facilities, programs, and infrastructure to the affected area.”* In general, EMAP is a “scalable yet rigorous” national standard for emergency management programs in both the public and private sectors.

Accreditation by EMAP is a six-step process:

1. Subscription (i.e. enrollment in the EMAP program)
2. Self Assessment
3. Application
4. On-Site Assessment
5. Committee Review
6. Accreditation Decision

Annual maintenance and reaccreditation (every five years) are additional steps that must be taken to ensure continued EMAP accreditation.

EMAP accreditation revolves around fifteen required emergency management programmatic elements:

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1. Administration and Finance
2. Laws and Authorities
3. Hazard Identification, Risk Assessment, and Consequence Analysis
4. Hazard Mitigation
5. Prevention
6. Operational Planning
7. Incident Management
8. Resource Management and Logistics
9. Mutual Aid
10. Communications and Warning
11. Operations and Procedures
12. Facilities
13. Training
14. Exercises, Evaluations, and Corrective Actions
15. Crisis Communications, Public Education and Information

In addition to the programmatic areas listed above, EMAP also addresses how programs are to be managed, including:

- **Administration, Plans and Evaluation:** the jurisdiction should have an executive policy/vision statement for emergency management and a strategic plan that identifies the mission, goals, objectives, and milestones related to implementation.
- **Coordination:** the jurisdiction should empower an agency, department or office to administer the emergency management program and designate an individual to execute the program on its behalf.
- **Advisory Committee:** a committee should be established whereby emergency management stakeholders can provide input in program preparation, implementation, and evaluation.

AMERICANS WITH DISABILITIES ACT (ADA) TOOLKIT, CHAPTER 7

The ADA Best Practices Toolkit is issued by the Department of Justice to help jurisdictions comply with the legal requirements of Title II of the ADA, though its use is not specifically required. When offering programs and services, the ADA requires that jurisdictions make “reasonable modifications to policies, practices, and procedures when necessary to avoid discrimination against a person with a disability and take the steps necessary to ensure effective communication with people with disabilities... without being required to fundamentally alter the nature of the program, service, or activity or [assume] undue financial and administrative burdens.”

Chapter 7 of the Toolkit addresses how to make emergency management programs, services and activities accessible to everyone. It covers a number of topics, including:

- **Notification:** Encourages a wide use of notification methods to ensure disabled community members are reached during an emergency, including those who are visually impaired, deaf, or who otherwise may not be reached.
- **Community Evacuation and Transportation:** Addresses the need to identify and assist individuals with varying degrees of immobility during an emergency.

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- **Emergency Shelter Programs:** Reiterates that the ADA states all emergency shelters should be able to provide the same benefits to individuals regardless of disability. A more thorough discussion of emergency shelter programs is addressed in an addendum to Chapter 7.
- **Access to Social Services, Temporary Lodging or Housing, and Other Benefit Programs:** States that application procedures, advertisement, and operation of social services and benefit programs during emergencies should accommodate people with physical disabilities and mobility limitations.
- **Repairing and Rebuilding:** Discusses accessibility standards to be used when rebuilding government facilities following a disaster (e.g. either ADA or Uniform Federal Accessibility Standards). Buildings constructed or altered after 1992 must follow the standard originally used and comply with the new construction requirements of ADA Title II.
- **Steps to Ensure Access to All in Emergencies and Disasters**
 - » **Advance Planning:** During all stages and for all emergency management program areas, seek and use input from people of all disability types, such as mobility, vision, hearing, cognitive, etc.
 - » **Voluntary Registry:** Create a voluntary, confidential registry of disabled individual who make require assistance during an emergency.
 - » **Notification:** Combine visual and audible alerts, such as sirens, TTY messages, text messaging, door-to-door contact and others.
 - » **Ensure Access for People with Disabilities Who Use Service Animals:** Train service providers, responders, and volunteers to understand the rights of people with service animals. These animals do not require certification, identification, or specific training – the only requirement is that they be used to assist with a disability.
 - » **Evacuation and Return Home:** Ensure that disabled individuals are able to evacuate and return home, either independently or with assistance.
 - » **Transportation:** Ensure that transportation planning addresses the mobility needs of the disabled, including the transportation of essential medical equipment like oxygen tanks.
 - » **Shelters:** Government and third-party providers should be familiar with Addendum 2 to Chapter 7, which addresses compliance with specific rules, policies, and procedures mandated by ADA in the provision of emergency shelter. At the same time, emergency managers should review the local supply of emergency shelters for accessibility (see ADA Checklist for Emergency Shelters). Identify and remove barriers or find nearby facilities that can be made accessible – publicize to the community which shelters are accessible.
 - » **Social Services and Other Benefit Programs:** Ensure that people with disabilities have an equal opportunity to apply for and benefit from them.
 - » **Incident Management:** Consider appointing one or more individuals knowledge on ADA requirements to participate in incident management and be available to answer questions that may arise.
 - » **Recovery:** When rebuilding or rehabilitating after a disaster ensure that facility design complies with all federal accessibility requirements.

APPENDIX C: EXISTING DOCUMENTATION REVIEW

SUMMARY / CONCLUSION

The documentation reviewed in the preceding pages demonstrates a high level of planning and organization for disaster mitigation, preparedness, and response at various levels of government. This documentation also provides an effective basis to help understand various disaster scenarios, frame the significance of a number of potential hazards, and develop some initial steps toward a comprehensive recovery plan. Some of this documentation (for example, SHIVA) provides an introduction to important concepts relating to both disaster preparedness and recovery such as the concept of community resilience and the complex, multi-dimensional consequences of disasters. The ESF-14 annex within the Seattle Disaster Response and Recovery Plan provides a good framework for identifying the linkages in City policies and planning priorities as they relate to short- and long-term disaster recovery goals.

The review also identified some important gaps. It is clear that of the four phases of emergency management (mitigation, preparedness, response, and recovery), recovery – especially long-term recovery – may be the least fully developed in most existing plans and other documents. While post-disaster recovery necessarily includes a number of critical actions that immediately follow a disaster, it is a complex and long-term process that involves a broad array of actors from all sectors (public, private, and non-profit) and at a variety of levels of government (local, regional, state, and national).

Some resources have been dedicated to, and progress has been made toward, the development of post-disaster recovery plan documentation for the City of Seattle. However, a comprehensive planning document that specifically addresses strategic short- and long-term recovery (the goal of the current scope of work) has not yet been developed. The federal government's National Disaster Recovery Framework provides a well-developed, multi-dimensional model that local jurisdictions (such as the City of Seattle) can begin to use as a structural basis for their own plans. Additionally, the NDRF provides one of the first comprehensive approaches to dealing with the issue of bringing together the full range of all-hazards disaster preparedness, mitigation, response, and recovery documentation.

The primary gap that has been identified through this initial review of existing documentation is the lack of a comprehensive post-disaster recovery plan that addresses both short- and long-term implications of recovery. It is the goal of the planning process (of which this review is a part) to provide a framework to address how the City can build upon its existing efforts, leverage external documentation such as the NDRF as well as best practices in other jurisdictions – both nationally and internationally. The result of this process will be to create a comprehensive, all-hazards post-disaster recovery plan that can complement current elements of Seattle's emergency management program, such as the SHIVA and the All-Hazards Mitigation Plan.

Case Studies - Best Practice Matrix

Name	Description	Positive Characteristics	Cautions
Fairfax County (Virginia) Pre-Disaster Recovery Plan	A comprehensive all-hazards pre-disaster recovery plan that assigns County roles and responsibilities, describes the role of the County's temporary Recovery Agency, and explains how recovery actions are planned.	Very thorough; covers all hazards; incorporates the National Disaster Recovery Framework; includes a set of vision / goal / priority statements; scalable; focuses on broad outreach; uses resilience and sustainability as key themes; emphasizes the governmental role as that of a facilitator	County/regional focus may make specific aspects of this plan less relevant on a City level. Its high level of detail may make it somewhat unwieldy to use as a guide/framework. Linkages with other existing planning documents (and how they are affected / augmented by the disaster recovery plan) are not fully apparent
Contact: Ian Gregoire Ian.Gregoire@fairfaxcounty.gov			
Resources: http://www.fairfaxcounty.gov/oem/pdrp/			
State of Florida Post-Disaster Recovery Planning: A Guide for Florida Communities (2011)	A comprehensive recovery plan framework designed as a model for Florida communities to guide them through pre-disaster planning and post-disaster implementation. Includes structures and responsibilities for recovery efforts.	An excellent guide for communities pre-disaster; includes case studies; divides recommended actions into "levels of achievement" depending upon availability of resources and level of preparedness	It is not a standalone recovery plan – rather a guide for other Florida communities (note: the Florida Disaster Recovery Plan – a separate document – is an annex to the State's Comprehensive Emergency Management Plan). Also, the assumptions regarding hazards related mostly to those more relevant to communities in Florida – E.g., coastal storms and flooding.
Contact: leo.lachat@em.myflorida.com			
Resources: http://www.floridadisaster.org/Recovery/IndividualAssistance/pdredevelopmentplan/Index.htm			

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Name	Description	Positive Characteristics	Cautions
San Diego (County) Operational Area Recovery Plan	All-hazards, short- and long-term recovery plan	Comprehensiveness, stakeholder representation; all-hazards pre-disaster focus; EMAP certified program.	Seems primarily focused on operations for recovery; generally rigid and formulaic; not much detail regarding the role of the public.
Contact:			
Resources:			
http://www.sdcounty.ca.gov/hhsa/programs/bhs/documents/BehavioralHealthServicesFinalRecoveryPlanAppendices.pdf			
Recovery Strategy for Greater Christchurch	Comprehensive recovery strategy for greater Christchurch following 2010 and 2011 earthquakes	Graphically appealing; carries statutory effect; talks in terms of resilience; doesn't focus on returning Christchurch to its former self.	Strategy was written post-disaster; goals and implementation points are fairly broad.
Resources:			
http://cdn.cera.govt.nz/sites/cera.govt.nz/files/common/recovery-strategy-for-greater-christchurch.pdf			
Christchurch Central Recovery Plan	Comprehensive redevelopment plan for central Christchurch following 2010 and 2011 earthquakes, focusing heavily on urban form and "anchor" projects.	Graphically/visually appealing; statutory in nature, so other plans and decision must be consistent with it.	Though it acknowledges all areas of recovery it focuses rather heavily on physical aspects and construction projects; written post-disaster.
Resources:			
http://ccdu.govt.nz/sites/ccdu.govt.nz/files/documents/christchurch-central-recovery-plan.pdf			

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Name	Description	Positive Characteristics	Cautions
Machizukuri in Kobe, Japan	Community-based planning and response efforts following a 1995 earthquake.	Demonstrates the informal role neighborhood-level groups can play in fulfilling response/recovery needs (e.g. food, housing, etc.).	The cultural context may make it difficult to apply recovery principles to other locations.
<p>Resources:</p> <p>http://participedia.net/cases/use-machizukuri-after-1995-earthquake-kobe-japan</p> <p>http://www.efcanet.org/Portals/EFCA/EFCA%20files/Powerpoint/22-05-04Kazuyoshi.ppt</p> <p>http://www.shinsai.or.jp/hrc-e/publish/lessons_ghe/lghe29.html</p> <p>http://www.iitk.ac.in/nicee/wcee/article/13_771.pdf</p> <p>Oshansky, Johnson, and Topping. Rebuilding Communities Following Disaster: Lessons from Kobe and Los Angeles. Built Environment. 32 (4), 354-374.</p> <p>Evans. Machi-zukuri as a new paradigm in Japanese urban planning: reality or myth? Japan Forum. 14 (3), 443-464.</p>			
Charlotte & Mecklenburg County, NC Floodplain Mapping Program	Floodplain mapping, visioning, problem-definition, and coalition building following multiple natural disasters (storms) with flood impacts.	Makes use of multiple funding sources; provides an example of using data and mapping technology (incl. HAZUS) for recovery planning; demonstrates how participatory planning and data-driven analysis can work hand-in-hand.	Not explicitly a recovery document; focused on largely mitigation; may be outdated given that much of the activity for this project occurred ~10 years ago.
<p>Contact: RobertBillings@MecklenburgCountyNC.gov</p>			
<p>Resources:</p> <p>ftp://ftp1.co.mecklenburg.nc.us/luesa/stormwater/Web_Linkto_Documents/Flood_Mitigation/Methodology%20Report%20Final_Rev1_2003.pdf</p> <p>http://charmec.org/stormwater/StormWaterAgencies/Documents/Peers%20PDF/contractorsfloodsum.pdf</p> <p>http://charmec.org/stormwater/data/Documents/MeckCoFldplnMapStndDocREV1_Final.pdf</p>			

APPENDIX D: CASE STUDIES

Fairfax (Virginia) Pre-Disaster Recovery Plan

- **Basic Purpose:** Provides a management framework, assigns roles for County agencies and departments, and explains the use of a temporary Recovery Agency, applicable to all hazard types.
- **Main Elements:** (1) Base Pre-Disaster Recovery Plan that describes the functioning of the temporary Fairfax County Recovery Agency and other recovery operations, both within and external to County government, (2) Position checklists for use by positions at the top of the recovery organization, primarily within the temporary Recovery Agency, and (3) Recovery Support Function (RSF) Annexes for use during an activation.
- **Notable Characteristics:** Identifies that the County will establish a “new normal” following a disaster; primarily intended for use by those involved directly in recovery operations; fully recognizes the National Disaster Recovery Framework.

SUMMARY

The authors of the Fairfax County Pre-Disaster Recovery Plan are clear to point out that the document is not a tactical or field manual, nor is it designed to provide standard operating procedures. Instead, it is a “guide for decision-making, establishing priorities, and identifying roles and responsibilities” – a plan focused on strategic and concept-level planning. In general, the intent of the Plan is to provide a “menu of potential options” that can be applied to any possible disaster recovery.

Like many standards planning documents, the Fairfax County PDRP begins with a set of vision, goal and priority statements.

The Plan’s pre-disaster recovery goals include:

- Be prepared and proactive; establish and maintain the County’s leadership role
- Leverage the private and non-profit sectors, using existing relationships
- Promote legitimacy and credibility
- Focus on fairness
- Build on existing deliberative plans and asset identification/prioritization
- Ensure sufficient financial reserves

Post disaster, the Plan offers a separate set of operational goals for both short- and long-term recovery:

- Provide effective command and coordination
- Maximize funding opportunities
- Communicate effectively
- Promote mitigation and foster resilient redevelopment and construction
- Maintain and enhance the County’s economic base
- Sustain social and human services, public safety, and health services
- Provide and/or ensure quality housing
- Sustain lifelines and restore infrastructure and public facilities

Following the goals, the PDRP spells out recovery priorities in order of relative importance. They are intended to help guide the creation and implementation of recovery programs, as well as inform the allocation of limited resources. The recovery priorities are:

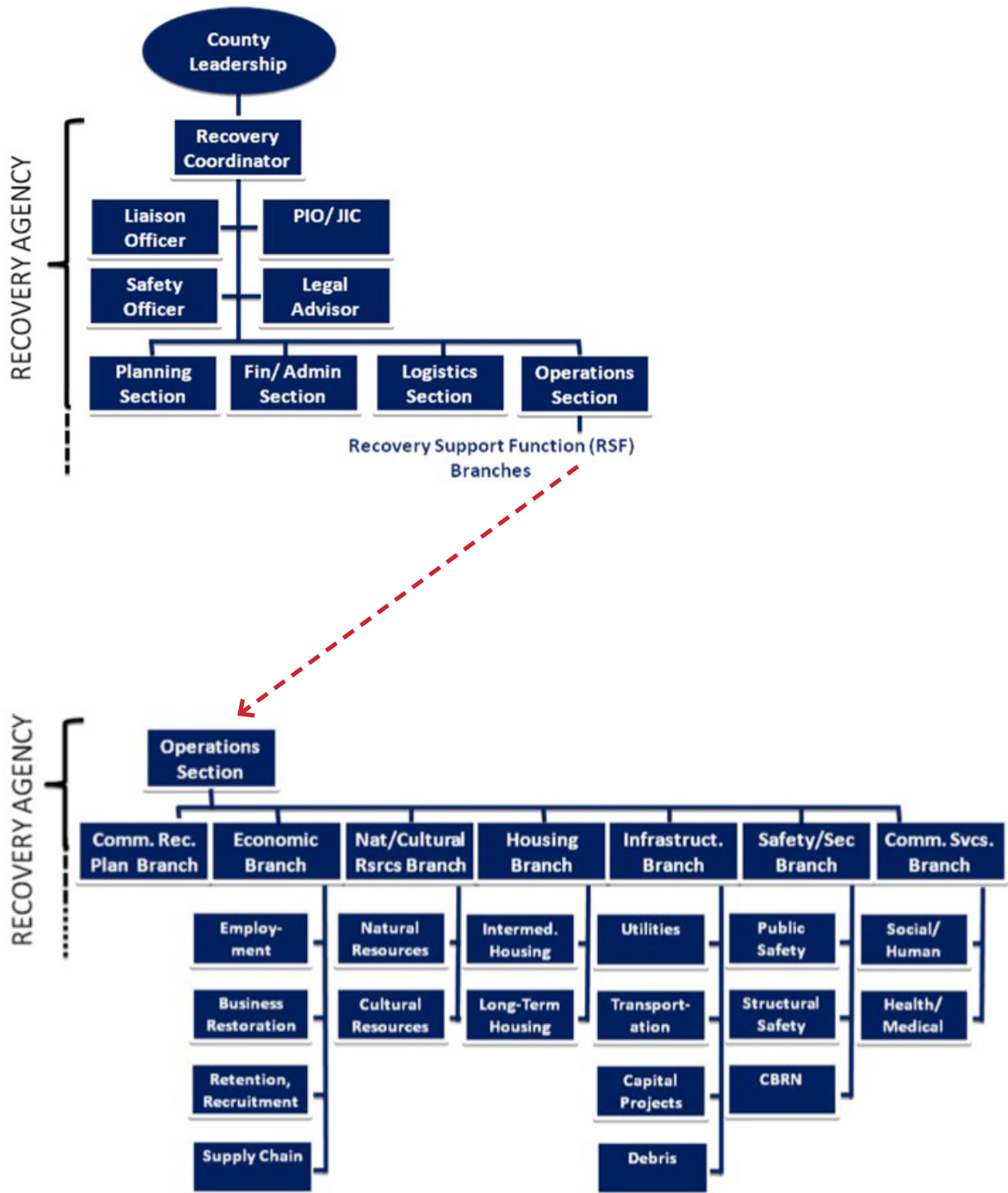
1. Address life-safety concerns
2. Provide for public safety/security and basic health and essential social and human services needs
3. Protect property and maintain basic economic stability
4. Respect basic liberties, legal protections, and privacy safeguards
5. Maintain basic standards of fairness, and balance individual rights and community interests
6. Support general well-being and address intangible social and personal impacts
7. Protect and restore natural and cultural resources

The main body of the PDRP begins with a “Situation” section that describes the planning context for the plan. It contains excerpts from the 2011 Fairfax County Hazard Mitigation Plan and the 2007 National Capital Region Hazard Identification and Risk Assessment. In terms of overall risk, Fairfax County identifies four natural hazards of primary concern: flooding, tornados, high winds, and winter storms/extreme cold. It further identifies nuclear attacks, naturally occurring pandemic diseases, and biological attacks as the man-made disasters with the highest potential for regional consequence. The PDRP is clear to reiterate that its purpose is to focus on strategic and organizational recovery from a disaster, rather than present a pre-disaster “reconstruction” or “rebuilding” plan, primarily because the most significant hazards are geographically unpredictable.

A core element of the PDRP is its description of the shift from response and short-term recovery to long-term recovery – a transition that occurs as immediate life safety concerns are contained, the situation persists, and the demand for services continues to exceed the capability of government and other organizations. In long-term recovery, the Emergency Operations Center (EOC) used during earlier phases is replaced by a temporary County Recovery Agency (i.e. the County Recovery Coordination Center) and the EOC Commander is replaced by a Recovery Coordinator. At the same time, operational authority shifts from the Director of Emergency Management to the County Executive. Finally, recovery staff transition from being part of ESF-14 (a branch within the Operations Section) to members of the Recovery Agency. The diagrams on the following page illustrate a typical organizational structure for use during long-term recovery.

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Example of a fully activated Recovery Agency Structure, including all RSF Branches (bottom). From Fairfax County Pre-Disaster Recovery plan.



One of the primary roles of the Recovery Agency is to utilize the Recovery Action Planning (RAP) cycle to set and prioritize objectives, ensure resource availability, monitor progress, and execute the its mission. The RAP consists of seven defined steps:

1. Assess progress on any existing objectives;
2. Set new objectives and strategies;
3. Determine tactics;
4. Conduct a planning meeting;
5. Draft, Approve and Distribute the RAP;
6. Perform operation briefings; and
7. Execute the Recovery Action Plan

The RAP process is the method used to turn recovery planning (led by the Planning Section within the Recovery Agency) into action (implemented by the RSF Branches in the Operations Section). The RAP is a cyclical process that occurs during each operational period, while at the same time a Community Recovery Plan is being developed (and eventually adopted) to set long-term strategy and policy. The RAP process “checks in” to ensure that the actions it puts forward are consistent with the vision and goals developed for the Community Recovery Plan.

Overall, the Fairfax County PDRP provides a very thorough organizational and process framework for addressing recovery, in both the short- and long-term. The plan is also notable for its inclusion of the elements contained in the recently completed National Disaster Recovery Framework. However, clear linkages with other existing planning documentation are not clearly documented – for example, how relevant comprehensive plans or transportation plans could be specifically affected by elements of the PDRP. While its approach is fairly traditional, the Fairfax County PDRP is a valuable example of a written recovery plan, which at the very least, will form part of any recovery program developed by the City of Seattle.

APPENDIX D: CASE STUDIES

State of Florida: Post Disaster Redevelopment Planning

A Guide for Florida Communities

- **Basic Purpose:** A statewide guide for Florida's communities to develop post-disaster recovery plans (PDRP). One basic tenet of the Guide is to help communities go beyond simple reconstruction of pre-disaster conditions, and to create more sustainable and disaster-resilient communities with participation from various community stakeholders.
- **Main Elements:** 1) An overview of what a PDRP is, current requirements, and basic forms such as a plan can take, 2) Proven methods for the initial planning process, 3) Suggestions and topics to include in PDRPs, and 4) Considerations for implementation and future updates to include in plans. The document also includes summaries of six "pilot plans" already underway in Florida communities: Panama City, Hillsborough County, Manatee County, Nassau County, Polk County, and Sarasota County.
- **Notable Characteristics:** As a state-level document, it facilitates development of disaster recovery plans state-wide and encourages locally-appropriate solutions to disaster recovery issues using community outreach. It provides a template that can be easily adapted for other communities in Florida and describes a range of different approaches to do so. It is also worth noting that Florida's state emergency management program is EMAP certified.

Notes on State Requirements for Post-Disaster Redevelopment Planning in Florida

In Florida, plans that address long-term post-disaster recovery and redevelopment are required for coastal communities and encouraged for all other communities. In addition, any local government with jurisdiction over coastal lands must have a coastal management element in its comprehensive plan, which is required to have a redevelopment component. This redevelopment component is further subject to state law that includes language specific to long-term redevelopment issues relevant to disaster recovery and hazard mitigation.

Guidebook Background and Purpose

The Guidebook was developed as part of the Florida Post-Disaster Redevelopment Planning Initiative with funding from the Florida Division of Community Planning, the Florida Division of Emergency Management, and the Florida Department of Environmental Protection. Grants were provided by both NOAA and FEMA at the federal level. The Initiative's purpose is "to develop a planning process that will encourage vulnerable communities to undertake the preparation needed to ensure long-term sustainability and guide them through pre-disaster planning and post-disaster implementation." The Guidebook draws upon the plans of the six case post-disaster redevelopment communities mentioned above to create its foundation. The Initiative and the creation of the Guidebook were in part a response to the 2004-2005 hurricane season that saw 12 named storms make landfall in Florida, seven of which were Major Presidential Declarations. These events highlighted the need for more pre-planning to assist local jurisdictions with long-term disaster redevelopment scenarios and to help provide guidance on how to become more resilient.

The Guidebook begins by clearly stating what a post-disaster recovery plan is, and why communities should have such a plan. A key rationale for development of a PDRP, as stated by the Guidebook, is to provide a means for local officials, staff, and community stakeholders to communicate with each other and understand the complexity of post-disaster recovery – before a catastrophic event. It also details

some key benefits of post-disaster recovery planning – e.g., faster and more efficient recovery, creating opportunities to “build back better”, and maintaining local control over recovery.

Different Approaches to Plan Development

The Guidebook provides five distinct approaches that communities can use as they develop their own PDRPs. These are:

- Stand-alone PDRP Integrated with Other Local Plans
 - » This is the most favored approach outlined by the Guidebook. This allows for a stand-alone plan to provide a single reference for guiding action and decision-making, while supported by other local plans with policy, regulations, procedures, and specific projects. The Guide focuses on this method as a model.
- Post-Disaster Redevelopment Ordinance
 - » Such an ordinance can be in addition to a stand-alone plan or a first step in preparing for long-term development after a disaster. For example, Hillsborough County, Florida used such an ordinance as the foundation of their plan.
- Integrate Post-Disaster Redevelopment Issues into the Comprehensive Plan
 - » The Guidebook stresses that integration of data, analysis, and policies are critical to guide long-term development, but that not all issues in a PDRP are a good fit for comprehensive plans.
- Integrate Post-Disaster Redevelopment Issues into the Local Mitigation Strategy (LMS)
 - » The Guidebook stresses that the scope of the PDRP is more comprehensive than the LMS, and there may be limitations with using this strategy alone.
- Expand the Recovery Annex of the Emergency Management Plan to Address Post-Disaster Redevelopment Issues
 - » The main disadvantage of creating a PDRP solely through this approach is that most Emergency Management Plans are operational in nature, and integrating long-term, post-disaster redevelopment issues, along with significant public input, may be difficult.

Plan Topic Recommendations

The Guidebook acknowledges the relative newness of long-term redevelopment planning and the lack of established best-practices for strategies and actions to address major issues. One of the first recommendations in this section is to ensure that local stakeholder input shapes the issues and actions suggested for inclusion in the plan.

Suggested issues are organized by six topics and are further labeled by three “levels of achievement” (minimum, recommended, and advanced), based upon an individual community’s ability to address each issue. The key issues identified as a way to organize a community’s PDRP are:

1. Land Use;
2. Housing;
3. Economic Redevelopment;
4. Infrastructure and Public Facilities;
5. Health and Social Services; and
6. Environment

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Minimum levels of achievement are recommended to be undertaken first; Recommended levels are those that should be addressed either simultaneously with minimum items or during the next planning cycle; advanced items (considered best practices) are meant for communities to commence upon after a solid foundation has been built for mitigation or recovery planning. Details of PDRP issues and actions are included at the end of this section.

Implementation Considerations

The Guidebook provides a template for implementation during all disaster phases – as a dynamic, ongoing process versus an end product. It also emphasizes the need to provide a flexible framework that leaves specific implementation actions to each community's discretion, based on local appropriateness. An important piece of the dynamic nature of the plan is plan maintenance – providing for an update every five years (which could coincide with other planning cycles for efficiency and coordination).

Post-Disaster Decision Making Authority, Organization, Roles

The Guidebook recommends that an organization similar to the stakeholder planning body formed to draft the plan take the lead in plan implementation. Most Florida PDRP pilot communities used an executive committee structure supported by subcommittees with specific roles related to the main plan topics – however, this is certainly not the only structure that can be implemented. The document specifies some over-arching roles that the planning body (e.g., a “community recovery team”) should be responsible for. These include:

- Oversight of post-disaster recovery on behalf of local governing bodies
- Ensuring consistency with the community's vision (including the comprehensive plan)
- Ensuring accountability, transparency, and equity in the recovery process
- Monitoring progress toward goals and ensuring progress is communicated to the public
- Reviewing damage assessments and evaluating the need to modify/augment post-disaster actions
- Reviewing priorities for action implementation
- Initiating recommendations for actions on emergency ordinances and procedures related to redevelopment
- Overseeing coordination between different levels of government
- Assigning/re-assigning implementation responsibility for new and adopted actions
- Formulating or modifying sub-committee structures
- Ensuring resources and staffing are provided in a timely manner
- Recommending budget requests and approval of grant agreements for Plan implementation

Financing

Financing is an issue both pre- and post-disaster. The Guidebook highlights one of the principle benefits of having a PDRP as being the ability to maintain local control over the entire redevelopment process, including the ability pursue creative financing options. Beyond the typical funding sources obtained through grant processes post-disaster, the Guidebook mentions the potential advantage of pursuing alternative financing projects, such as public-private partnerships, that could result in more effective community development. Understanding potential waivers of certain criteria or streamlining of financing processes is advisable to undertake pre-disaster.

San Diego (County) Operational Area Recovery Plan

- **Basic Purpose:** Establish the County's recovery organization and communication structure for disaster recovery.
- **Main Elements:** A concept of operations (for short- and long-term recovery); roles and responsibilities for local, state and federal agencies, as well as the private sector; descriptions for specific functional roles (e.g. damage assessment, assistance centers, documentation, etc.).
- **Notable Characteristics:** Part of an emergency management program that is EMAP certified; closely integrated with the State of California's program.

The San Diego Operational Area Recovery Plan is a component of the larger Operational Area Emergency Plan that serves the entire county. In addition to this countywide plan, each jurisdiction must develop its own recovery plan or annex using the County's Recovery Plan as a template.

The recovery goals for the operational area include:

- Coordinated gathering and evaluation of damage assessment information
- Accurate estimation of the financial value of losses and recovery costs
- Quick application for state and federal disaster relief funds
- Timely restoration of community services and infrastructure to pre-disaster condition
- Implementation of cost-effective and practicable mitigation measures.

According to the Plan, short-term recovery transitions into long-term recovery at the direction of the Operational Area EOC Director. Under most circumstances, the transition from short to long-term recovery operations will occur within 90 days of the termination of the emergency or close of the incident period. In the Plan, short-term recovery is focused on the restoration of shelter, jobs, services and facilities. Long-term recovery is dedicated to rebuilding safely and wisely, reducing future hazards and optimizing community improvements.

Overall, the San Diego Operational Area Recovery Plan takes a familiar (and perhaps limited) approach to recovery planning. While it clearly lays out the structure and interactions that guide recovery efforts, it offers only limited content focusing on the long-term vision of San Diego County post-recovery. Like similar documents, the Plan tends to focus on response and near-term recovery without fully exploring how long-term recovery should take place or what form it should take. In essence, it is a plan to help government reconstruct and restore communities to their original pre-disaster status.

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Christchurch, NZ: Recovery Strategy for Greater Christchurch

In response to a series of devastating earthquakes in 2010-2011 in the Christchurch area, the New Zealand government passed the Canterbury Earthquake Recovery Act. As part of the Act, the Canterbury Earthquake Recovery Authority (CERA) was created to coordinate the overall effort of recovery. A central component of CERA's role is the development of the *Recovery Strategy for Greater Christchurch*. The Recovery Strategy focuses on helping to identify where more specific Recovery Plans, documents with the power to alter or replace existing plans, are needed. One of the specific Recovery Plans called for by the Recovery Act is the *Christchurch Central Recovery Plan* (reviewed after this case study), which addresses the city's central business district.

- **Basic Purpose:** Creates a "shared vision" and the broad government framework for recovery efforts in the larger Christchurch region.
- **Main Elements:** Goals for six components: Leadership and Integration; Economic Recovery, Social Recovery, Cultural Recovery, Built Environment, and Natural Environment; a broad description of recovery phases and their components; and a framework for monitoring recovery progress.
- **Notable Characteristics:** Government adopted and considered "statutory" in nature – all other planning efforts must be consistent with it; covers multiple jurisdictions.

The Recovery Strategy for Greater Christchurch provides a definition of recovery, sets principles and priorities, and lays out a broad timeline of recovery milestones. It is intended to guide and coordinate decisions by government agencies and strategic partners while more detailed programs and plans are being developed. By law the Recovery Strategy must be used to inform certain other plans and strategies in the greater Christchurch area (e.g. city and district plans, transportation plans, etc.). The Recovery Strategy, as stipulated in the Recovery Act, always prevails if inconsistencies arise between it and other documents. The relationship between the Recovery Strategy and other key strategies, policies and plans for greater Christchurch is documented on the following page.

The Canterbury Recovery Act, which authorized the Recovery Strategy, states that recovery is both "restoration and enhancement." As the same time, the Strategy explicitly states that recovery does not necessarily mean returning the region to its original condition before the earthquakes. The emphasis on recovery is "building better," and where opportunities for enhancement exist, they should 1) increase resilience and/or functionality, or 2) be cost effective according to life-cycle analysis.

The Recovery Strategy describes three phases: immediate, short-term, and medium- to longer-term. The immediate phase, lasting approximately 15 months, is focused on restoring basic utilities, assessing and demolishing unsafe structures, and establishing areas for suitable redevelopment. The short-term phase, which occupies the following couple of years, includes the resolution of land use decisions, the delivery of early "confidence building" projects, and the finalization of recovery plans. Medium- to longer-term recovery (lasting a decade or more) focuses on major construction projects, restoration of cultural facilities, and the phase-out of recovery organizations.

At the heart of the Recovery Strategy are six "components":

- Leadership and Integration;
- Economic Recovery;
- Social Recovery;
- Cultural Recovery;
- Built Environment; and
- Natural Environment

STRATEGY INSERTS RECOVERY PROVISIONS INTO THESE DOCUMENTS AND INSTRUMENTS				STRATEGY INFORMS RE-EVALUATION OF OTHER PLANNING DOCUMENTS		STRATEGY RECOGNISES
<p>Canterbury Regional Policy Statement</p> <p>Canterbury Natural Resources Regional Plan</p> <p>Christchurch City, Banks Peninsula, Waimakariri and Selwyn District Plans</p>	<p>Long Term Plans</p> <p>Annual Plans</p> <p>Triennial Agreements</p>	<p>Canterbury Regional Land Transport Strategy</p> <p>Canterbury Regional Land Transport Programme</p> <p>Regional Public Transport Plan</p> <p>NZTA recommendations for Police activities under s.181 Land Transport Management Act</p>	<p>Reserves Management Plans</p> <p>Canterbury Conservation Management Strategy</p> <p>Conservation Management Plans</p>	<p>Greater Christchurch Urban Development Strategy</p> <p>Christchurch Economic Development Strategy</p> <p>Canterbury Biodiversity Strategy</p> <p>Canterbury Water Management Strategy</p> <p>Canterbury Hazardous Waste Management Strategy</p> <p>Contaminated Land Management Strategy</p>	<p>National Infrastructure Plan</p> <p>Canterbury District Health Board Regional Services Plan and Annual Plan</p> <p>Ministry, department and Crown agency statements of Intent, policies, strategies and plans</p>	<p>Ngāi Tahu 2025</p> <p>Te Whakatau Kaupapa: Ngāi Tahu Resource Management Strategy for the Canterbury Region</p> <p>Other Ngāi Tahu strategies and plans</p>
RESOURCE MANAGEMENT ACT 1991	LOCAL GOVERNMENT ACT 2002	LAND TRANSPORT MANAGEMENT ACT 2003 PUBLIC TRANSPORT MANAGEMENT ACT 2008	CONSERVATION ACT 1987, RESERVES ACT 1977 AND WILDLIFE ACT 1953	NON-STATUTORY	OTHER ACTS	NGĀI TAHU CLAIMS SETTLEMENT ACT 1998
KEY AGENCIES						
Environment Canterbury, Christchurch City Council, Waimakariri District Council, Selwyn District Council, New Zealand Transport Agency (NZTA), Department of Conservation, Fish and Game				Multi-agency	Government organisations and agencies	Te Rōnanga o Ngāi Tahu

Source: Canterbury Earthquake Recovery Authority (CERA), *Recovery Strategy for Greater Christchurch*

Under each component is a set of fairly broad “goals.” For example, Economic Recovery includes “facilitating the recovery and development of the Central Business District.” Implementation of the Strategy and fulfillment of its goals is the responsibility of various government agencies and their programs. For example, a government agency might develop an assistance program that focuses on Goal 4.4: “Restoring historic buildings, where feasible, for the benefit of the community.”

In addition, the Plan includes nine Guiding Principles:

- Work together;
- Take an integrated approach;
- Look to the future;
- Promote efficiency;
- Use the best available information;
- Care about each other;
- Innovate;
- Aim for balanced decision-making; and
- Keep it simple

For programs where statutory intervention is needed (e.g. approval of significant government funding), individual “Recovery Plans” are developed.

Finally, to ensure progress toward the goals, the Recovery Strategy calls for a system of monitoring. This ensures the establishment of baseline information, identification of program targets, and the tracking of financial performance.

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Christchurch, NZ: Christchurch Central Recovery Plan

- **Basic Purpose:** Serves as a sub-component of the central government's overall recovery plans (via a federal act) for the Christchurch region by focusing specifically on the central business district. Creates specific work programs that flow from the more general Recovery Strategy.
- **Main Elements:** A "Blueprint" framework that defines a new urban form for central Christchurch. Identifies core urban design principles, redevelopment districts, and "anchor" projects for each district to be built in the near- to mid-term.
- **Notable Characteristics:** Like the Recovery Strategy it is considered "statutory"; identifies specific projects to carry out the vision but leaves implementation to various government agencies and private sector partners.

The CER Act mandates that an individual Recovery Plan be created for the Christchurch central business district. Like the Recovery Strategy for Greater Christchurch, the Central Recovery Plan is considered a "statutory" document. As such, a variety of other documents must remain consistent with it, such as the City's Long Term Plan and various transportation plans.

The primary element of the Central Recovery Plan is the "Blueprint" – a spatial framework (presented in the form of a map) that describes the basic urban form for recovery development, including key projects. The Blueprint is based on ten design principles that work to address the challenges faced by central Christchurch following the earthquakes. The design principles are: Compress, Contain, Catalyze, Support, Repair, Embrace the River, Open Space, Complete, Existing Value, and Attract. The Recovery Plan presents a central design concept for central Christchurch to create a "greener, more accessible city with a compact core and a stronger built identity...a city for all people and cultures, recognizing in particular Ngai Tahu (i.e. South Island Maori) heritage and places of significance."

Unlike the Recovery Strategy, the Central Recovery Plan is fairly specific in the details it provides. In particular, it is structured around 16 "anchor projects" to be designed and built over a period of five years, with each project having a designated lead and likely partners. In general, the Central Recovery Plan puts forth an approach focused on districts, referred to as precincts. For example, it includes retail, innovation, and performing arts precincts. Within each precinct, the Plan calls out guiding principles and overarching design principles, often described through illustrative maps and drawings showing what development may look like. While the Recovery Plan includes broad design and land use decisions, it is not entirely prescriptive. For example, one specific project calls for construction of a covered stadium with seating for up to 35,000 but does not dictate specific tenants or limit the parties that may be involved in its development.

In essence, the role of the Central Recovery Plan is to lay out a basic vision and direction in terms of design and land use for the city's core. To achieve implementation, the Central Recovery Plan instructs the Christchurch City Council to adopt a set of amendments to its District Plan (the legal document that regulates land use and urban design in the city). As a statutory document designated by the government of New Zealand, the Central Recovery Plan has the authority to require such changes.

Kobe, Japan: The Role of Machizukuri after the 1995 Kobe Earthquake

- **Basic Purpose:** In Japan, Machizukuri is a method of community participation in government sponsored redevelopment created in the 1960's. The 1995 Kobe earthquake provided a case study for how it could perform during the rehabilitation of the City, including its ability to create social capital – i.e., an informal network that provides for rapid and localized recovery efforts post-disaster.
- **Main Elements:** Organized councils that carry out Machizukuri, including reviewing government redevelopment plans and facilitating neighborhood-level assistance after disasters.
- **Notable Characteristics:** Fulfill a formalized role by way of city ordinance; operate successfully by building social capital.

Machizukuri is a term that generally describes district-level community organization and planning in Japanese cities. Typically, Machizukuri is carried out by organized “councils” that usually arise from existing neighborhood associations; many of these councils are officially recognized by city ordinance. Machizukuri is often contrasted with the centrally-coordinated planning and redevelopment common during much of Japan’s recent history. In its purest form, Machizukuri functions as a bottoms-up approach to planning – the city provides paid consultants to local councils who draft their own plans, with a fair degree of autonomy, for eventual approval by the local municipality. But as shown in the aftermath of a major earthquake in Kobe, Machizukuri can produce mixed results.

Just three months after the Great Hanshin earthquake devastated the City of Kobe in 1995, the local government issued plans for land readjustment and redevelopment. In neighborhoods that were designated as “official” projects, those requiring the most land readjustment and redevelopment, Machizukuri councils were required. Nonetheless, the public was given just two weeks to review these plans and provide comments before implementation commenced (Participedia). As a result, many major recovery decisions were made without significant support from the community. In instances where the Machizukuri councils were included in recovery efforts it was often only to address fairly detailed and small-scale issues, such as the design of streets and open space (Evans).

In other ways, the Machizukuri enjoyed much greater success, notably in the informal roles they played during disaster response and recovery. In the Shin-Nagata South neighborhood they helped organize temporary parking, temporary housing and a local currency to help retailers. The Machizukuri in the Mano community helped with fire and rescue efforts, coordinated food distribution and an outdoor community kitchen, and provided nighttime watches for each block. Researchers focused on the role of Machizukuri in Japan have pointed to two key elements that lead to success: 1) the accumulation of social capital and 2) leadership. Machizukuri councils function at a relatively small-scale in which neighbors can interact closely with each other. They also work proactively to keep their communities informed with regard to development and recovery activities, often by publishing newsletters. In order to exploit this social capital, a leader is often needed to connect the Machizukuri council with outside organizations and the local government, who in the end, is the ultimate decision-maker.

APPENDIX D: CASE STUDIES

Charlotte & Mecklenburg County, North Carolina:

Floodplain Mapping Program

- **Basic Purpose:** A program to manage to urban floodplains and reduce flood-related losses that had been occurring on a relatively consistent basis prior to the planning effort. The program was created in part due to lack of federal assistance for past disasters (due to no presidential disaster being declared) and a need to create local solutions to reduce flood-related losses.
- **Main Elements:** Up-front visioning and problem-definition process with a broad contingent of stakeholders; Use of dynamic mapping technologies that allowed for matching hazard scenarios with future land use planning; A home buyout program for the most seriously threatened structures (and creation of new public amenities in place of most structures); Public online mapping tool with data that goes beyond FEMA-produced maps.
- **Notable Characteristics:** Provides an example of a mitigation activity that reduces recovery burdens; demonstrates the combination of participatory planning techniques with data analysis to create an objective basis for hazard mitigation that could be used to guide future recovery efforts; demonstrates the creation of a public amenity (i.e. open space) in conjunction with emergency management efforts.

After suffering a number of successive flooding episodes in the late 1990's, the city and county governments in Charlotte, North Carolina set out to develop a new program for identifying and managing flood risks. Before 2008, over 2000 structures were located in FEMA-designated floodplains and cumulative damage claims had already exceeded \$13 million. The program was designed to replace FEMA-issued flood maps (originally produced in the 1970s) that were significantly out-of-date and did not meet the needs of the rapidly developing region. The FEMA maps also had an inherent limitation: they depicted static, current flood hazard conditions. The effort undertaken through the mapping program provided a means to match future land uses with a number of disaster scenarios. The effort was estimated to cost roughly \$1.4 million, with costs split between the County and the state/federal governments.

The effort began with a visioning process that engaged a wide breadth of stakeholders to understand the problem and set a course for a solution. The process resulted in the identification of six strategies for incorporating hazard mitigation into community recovery. A key theme was the use of reliable, objective data to map hazards and identify future land use planning strategies.

The re-mapping program provided the City of Charlotte and Mecklenburg County with accurate and updated information to pursue flood-related mitigation activities. Along the Upper Little Sugar Creek, one of the most threatened floodplains in Charlotte, \$28 million in Federal funding, \$2 million in state funding, and \$18 million in local storm water funding was used to purchase 180 buildings, consisting mostly of single-family homes. The program removed threatened structures and created around 100 acres of new publicly-deeded open space along the river. In total, the Mecklenburg County Floodplain Buyout/Acquisition Program has been used to purchase around 250 homes and 400 apartment units.

Another component of the effort is a new dynamic flood-mapping tool provided by Charlotte-Mecklenburg Storm Water Services (<http://mapserver.mecklenburgcountync.gov/3dfz/>). This online mapping tool is designed to provide more than just the standard FEMA flood maps used for insurance purposes. It allows homeowners to see a dynamic view of the water depths likely to result from flooding of various intensities, ranging from a minor 2-year flood to a potentially catastrophic 500-year flood. The

functionality of the tool will eventually be expanded to help homeowners not only identify their risk, but also ways to reduce it.

Although the Charlotte/Mecklenburg County area faces a different set of hazards than the Puget Sound region, the process offers a good example of how to plan for post-disaster recovery by mitigating future consequences through informed land use planning. A key take-away from the Charlotte/Mecklenburg County floodplain mapping program was its use of technology and data to create an objective view of hazard vulnerability aligned with future land uses. This, along with the early community/stakeholder involvement allowed the community to produce alternatives that were fact-based and aligned with the priorities of the stakeholders.

APPENDIX D: CASE STUDIES

Summary

The recovery planning efforts reviewed in this section illustrate the fact that recovery planning takes a wide variety of forms, dependent on a range of factors including the type of anticipated hazards, historical precedent, political support, funding sources, and jurisdictional goals – among many others. This is especially true when comparing pre- and post-disaster recovery plans. Jurisdictions that have already experienced a disaster, such as Christchurch, tend to focus strongly on the built environment and expediting construction for rebuilding efforts. By comparison, jurisdictions like the State of Florida offer fairly broad recovery frameworks intended to serve as a flexible guide built on best practices that can be adapted by communities as appropriate for local conditions.

Together, the recovery planning efforts described herein represent a relatively small set of precedents in the U.S. and internationally that can be compared to the type of comprehensive and visionary recovery planning effort that the City of Seattle desires to undertake. In general, pre-disaster recovery planning tends to manifest as a more operations-oriented system of recovery management (e.g. based on NIMS) that incorporates traditional programs (e.g. government administered assistance). Though several of the planning documents reviewed here fully explain the relationships and agency roles important to recovery, other aspects that could contribute to a more comprehensive post-disaster recovery approach could be further developed (e.g. future land use planning or neighborhood-level capacity building). These plans and planning frameworks are valuable as guides as the City of Seattle undertakes a recovery planning effort that considers the full breadth of planning issues necessary in the wake of a major disaster.

Of the recovery plans and related documentation reviewed here, those from Christchurch and Fairfax County offer a fairly comprehensive recovery approach that includes both the vision (e.g. Christchurch) and the operational planning (e.g. Fairfax County) that are essential to recovery planning – and will likely be the most useful for comparison purposes. From a structural and overall guidance standpoint, the State of Florida's recovery planning guide is an excellent resource that draws upon best practices and lessons learned from several post-disaster recovery plans developed in Florida communities. It would be useful to also review the recovery planning efforts undertaken in those communities to gain a further understanding of how the State's Guidebook was implemented in practice.

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