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Columbia Corridor Drainage Districts Governance Study

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NeRC
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College of Urban and Public Affairs

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The primary goal of the Multnomah County Drainage District is to protect lives and properties from both external flooding and internal flooding, by maintaining levees along the Columbia River and managing drainage districts and pump stations. The Drainage Districts facilitate the balance of safety, recreation, and restoration through our partnerships with public, non-profit, and private organizations.

NERC is based at Portland State University in the College of Urban and Public Affairs. The Center focuses on economic research that supports public-policy decision-making, and relates to issues important to Oregon and the Portland Metropolitan Area. NERC serves the public, nonprofit, and private sector community with high quality, unbiased, and credible economic analysis. Dr. Tom Potiowsky is the Director of NERC, and also serves as the Chair of the Department of Economics at Portland State University. Dr. Jenny H. Liu is NERC's Assistant Director and Assistant Professor in the Toulan School of Urban Studies and Planning. The report was researched and written by Thomas Potiowsky; Jenny Liu; Mike Paruszkiewicz, NERC Economist; and Jeff Renfro, NERC Senior Economist. Research support was provided by Marisol Cáceres and Peter Hulseman.

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Table of Contents

Executive Summary

The four drainage districts along the Columbia Corridor have responsibility for the maintenance of 27 miles of levees which protect over 12,500 acres of land and over $10 billion worth of property. The districts have notably varying sizes, economic profiles, and ongoing maintenance needs. Multnomah County Drainage District (MCDD) is home to an overwhelming majority of the Corridor's commercial activity, and accordingly its broadest tax base. Peninsula Drainage District #1 (PEN #1) and Peninsula Drainage District #2 (PEN #2) are characterized by relatively large amounts of rural tract land, parks, and residential properties, and Sandy Drainage Improvement Co. (SDIC) comprises a mix of commercial and vacant properties whose district assessments are not subject to tax compression. The ability of the individual districts to fund future maintenance and capital improvements thus also varies, which has motivated an exploration of the viability of consolidating the four districts into one unified district.

In order to understand the impact of consolidation on revenue generation, NERC recreated the districts' present assessment methods and assumed varying levels of future funding needs for scenario analysis. Assessment mechanisms vary slightly by district but are mainly derived from lot acreage and the percent of land which is impermeable. Currently, each district is responsible for funding its own operations. Under consolidation, these funding responsibilities would be pooled, changing both assessments for individual property owners and the overall distribution of revenue collection. Each of the districts already has many properties under compression. This is especially true of PEN #1 and PEN #2; the ability of these two districts to take on additional funding responsibilities is limited by the state-imposed cap on total property taxes. Consolidation could mitigate some future compression loss in the districts where it applies.

This study considers three future revenue-requirement scenarios: *stable growth*, *low-expense*, and *high-expense*. Tax lot-level estimates of future assessments are calculated and, in each scenario, consolidation and no-consolidation outcomes are compared. The analysis finds that under consolidation, the total revenue collected is greater due to a decrease in compression losses (Figure E.1). This occurs because the distribution of revenue collection changes (Figure E.2), with more revenue collection occurring in MCDD and SDIC where compression is less common or nonexistent. Additionally, there are expected administrative and organizational efficiencies associated with consolidation.

Table E.1 – Assessment Revenue Compression Loss, Consolidation vs. No Consolidation

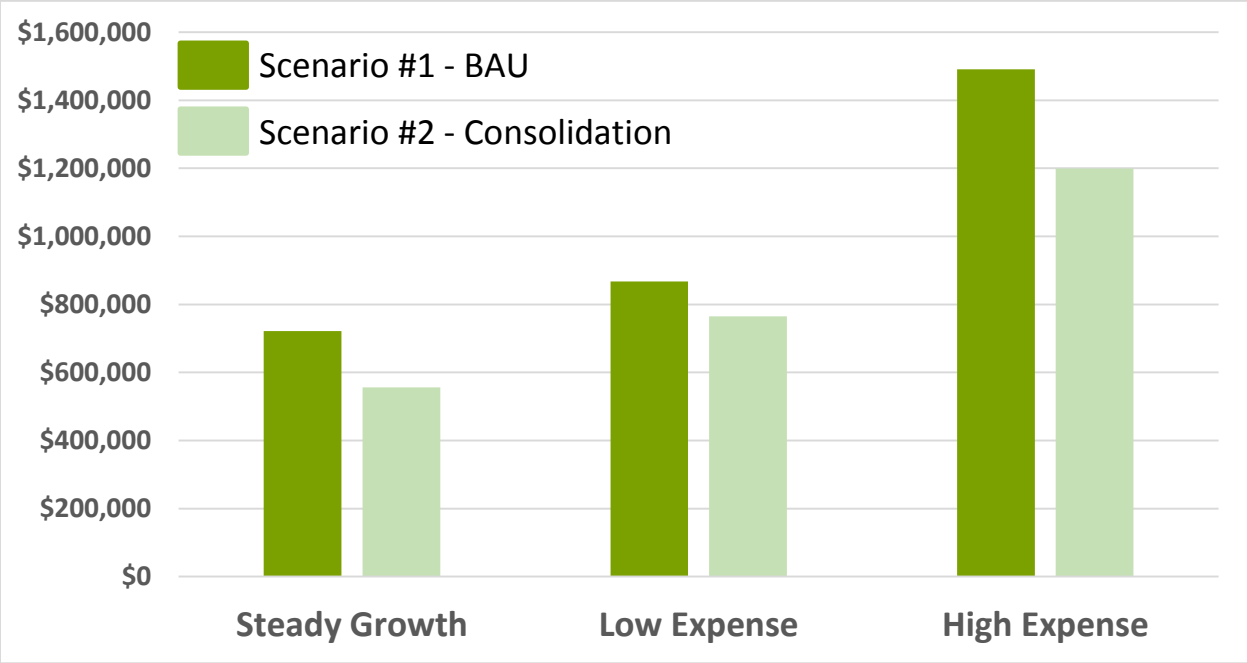
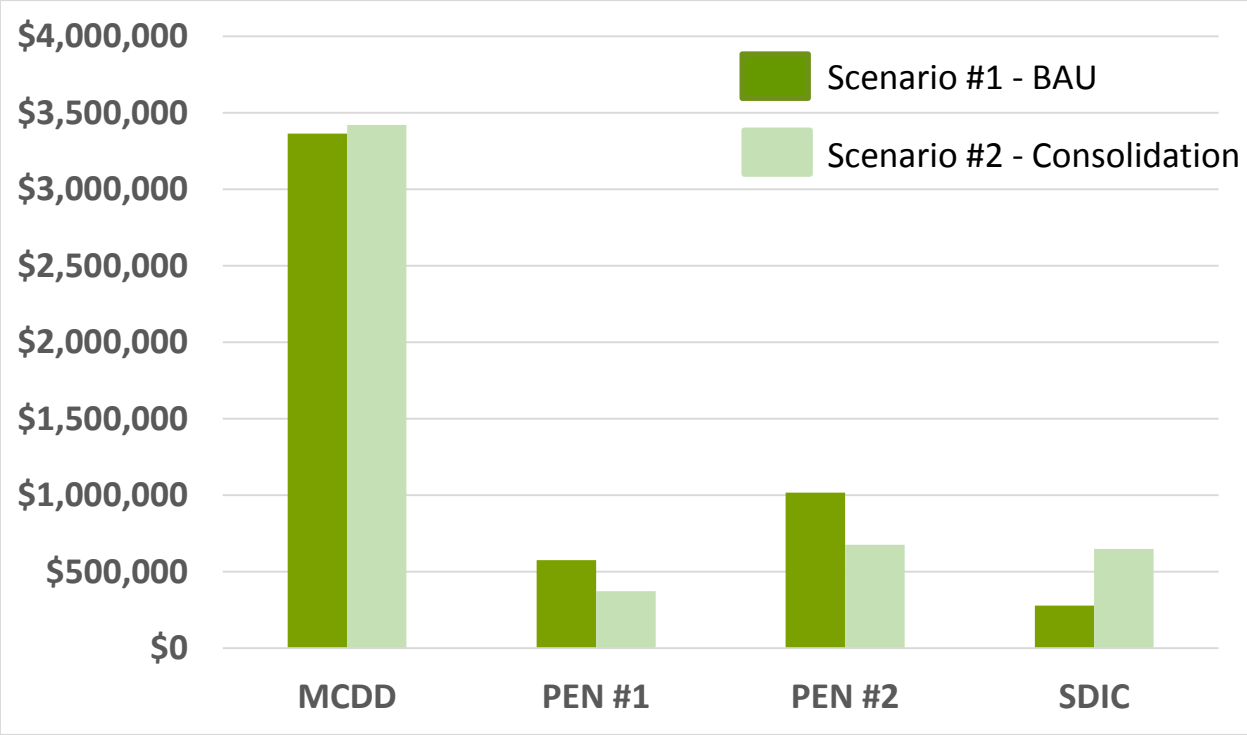


Table E.2 – District Taxes Levied, *Steady Growth* Budget Scenario



The report also considers two paths to consolidation which would work within current statutes, or with minor changes. The Governance section of the report covers these paths in detail; the overall goals of the plan are to ensure that all stakeholders remain appropriately represented under the new governance structure and that the process happens in a transparent manner.

The continued operation of the levee system protects a vital portion of the regional economy. The need to fund future operations and possible capital improvements may require changes to the current governance and assessment structures. Any change may shift funding responsibilities and could change the revenue collected from individual property owners. Thus, it is vital that the process by which these changes are made is clearly explained to all district stakeholders.

Context and Background

Four Columbia Corridor Drainage Districts Multnomah County Drainage District (MCDD), Peninsula Drainage District #1 (PEN #1), Peninsula Drainage District #2 (PEN #2), and Sandy Drainage Improvement Co. (SDIC) are responsible for maintaining over 27 miles of levees along the Columbia River and protect over 12,500 acres of land with over $5 billion worth of property. Multnomah County Drainage District, the largest of the four districts, currently manages the administration of all district operations within the levee system under an intergovernmental agreement.

Prior to the formation of the districts, the lower Colombia River floodplain flooded seasonally, limiting agricultural, industrial, and commercial land uses. Private attempts at preventing flooding proved relatively unsuccessful due to lack of organization and proper planning. The levee system was constructed by the U.S. Army Corp of Engineers, and the individual drainage districts are contracted to perform ongoing maintenance. MCDD, PEN #1, PEN #2, and SDIC formed as drainage districts in 1917, currently governed under ORS 547.[1] SDIC changed to a drainage improvement company in 1998, governed under ORS 554.[2] While PEN #1 and PEN #2 lie entirely within the City of Portland, MCDD is located within the jurisdictions of the Cities of Portland, Fairview and Gresham, and SDIC is located within the City of Fairview and the City of Troutdale. The unique geographic and economic makeup of each of the districts naturally led to the formation of separate and distinct entities.

Figure 1 – Drainage District Map

The levees that comprise each district's flood protection infrastructure are accredited by the Federal Emergency Management Agency (FEMA) for the purposes of the National Flood Insurance Program (NFIP). Accreditation standards have changed,[3] and portions of the combined system currently do not meet new criteria set by USACE. Given the sizeable and complicated process of updating and re-

[1] https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2013ors547.html.
[2] https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2013ors554.html.
[3] Please refer to www.mcdd.org for detailed information.

accrediting a levee system that affects numerous stakeholders, re-accreditation has been designated as an Oregon Solutions[4] process, to facilitate participation and collaboration among the cities, county, regional and state government, and neighborhood, environmental, and business groups.

The onus of maintaining accreditation, the potential for increased administrative efficiency and economies of scale, and the increasing importance of the districts to the regional and state economy, has led to the consideration of consolidating the four Columbia Corridor drainage districts into a single administrative entity.[5] The question of consolidation is multifaceted, and involves statutory constraints; coordination challenges before, during, and after any merger takes place; economic and property tax considerations; and the often competing issues of efficiency and equity. The following sections develop a full profile of each district in the system, summarizes the fiscal positions therein, and investigates the economics of district operations in the context of potential consolidation.

[4] See www.orsolutions.org.

[5] No actual planning has occurred to this end. This report approaches the question of consolidation in hypothetical terms only, and in the most general terms possible.

District Profiles

The economic and geographic attributes of the four drainage districts are central to current operations, accreditation responsibilities, and potential consolidation. Since the districts are diverse in regards to administrative and capital requirements, land ownership, and mixes of economic activity, the effects of consolidation would significantly vary across their borders. Furthermore, since the districts vary significantly in size, number of properties, and proportion of land developed, the amount of tax revenue that can be generated within each district (either separately or as a combined entity) also varies significantly.

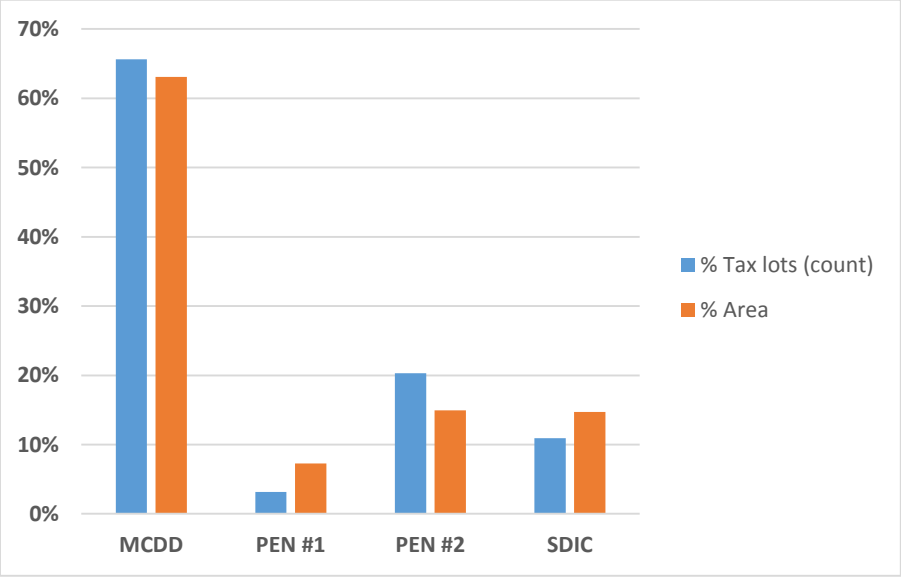
I. Geographic Profile

MCDD is physically much larger than the other three districts, encompassing 66% of total properties (tax lots) and 63% of total square footage in all four districts, respectively. The other three districts are comparable in size although PEN #1 accounts for the smallest percentage of tax lots with approximately 3%. MCDD also accounts for half of the total area of developed land in the districts combined.[6]

Table 1 – General Characteristics by District

	MCDD	PEN #1	PEN #2	SDIC
Acres	8,590	945	1,543	1,550
Landowners	1,768	15	913	96
Pump Stations	5	1	2	1
Miles of Levee	12.49	5.06	5.47	4.22
Miles of Ditches and Slough	26.1	5	6	8

Figure 2 – Property (Tax lot) Count and Physical Area by District



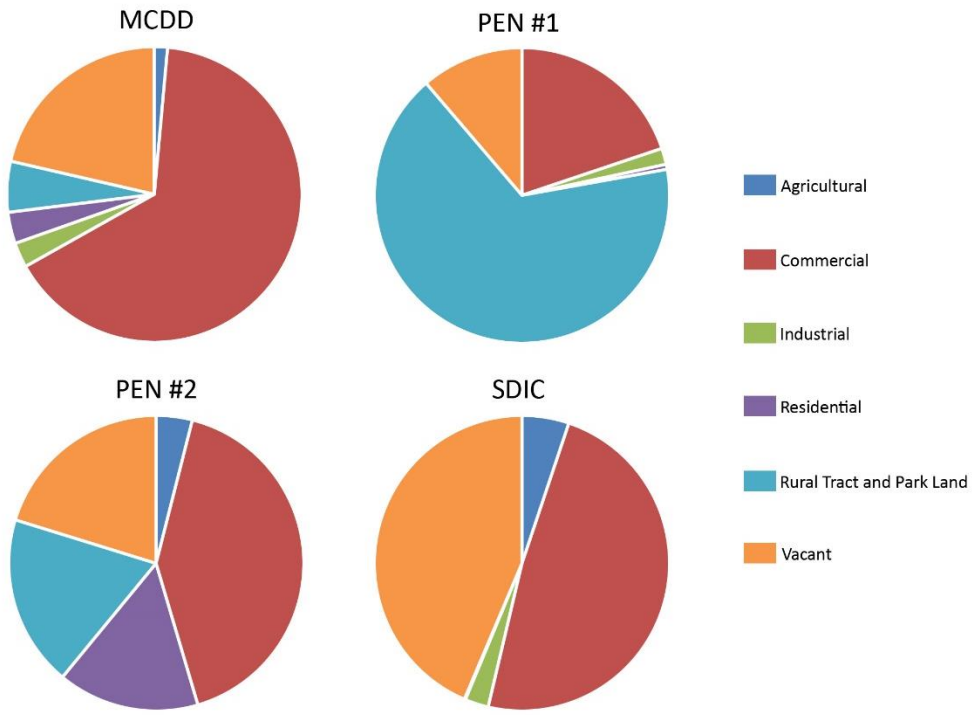
[6] Tax lots are considered Developed Land when building improvements or other land use has been linked to it. Vacant Lots are Tax Lots with no such linkage.

Across the Columbia Corridor, the most common land use classification is single family (45% of tax lots), but these properties are physically small, occupying just one percent of land in the four drainage districts combined. Commercial zones cover 28% of tax lots, but occupy more than half of the total four-district area. Industrial activity covers a relatively small number of tax lots and small physical area. Vacant (undeveloped) and rural[7] lots account for significant portions of both tax lots and area.

Table 2 – Land Use in Columbia Corridor Drainage Districts

Land use	Total Acres	Total Acres (% of four-district total)	Total Tax lots	Tax lots (% of four-district total)
Agriculture	252	2%	16	< 1%
Commercial	6,217	58%	1,180	28%
Industrial	256	2%	41	1%
Single Family Residential	123	1%	1,867	45%
Multi-family Residential	17	< 1%	135	3%
Rural	1,292	12%	53	1%
Vacant	2,593	24%	883	21%
Grand Total	**10,751**	**100%**	**4,175**	**100%**

Figures 3 – Lot Type Distribution by District



[7] For zoning purposes, "Rural" refers to tract land suitable for residential development and park land

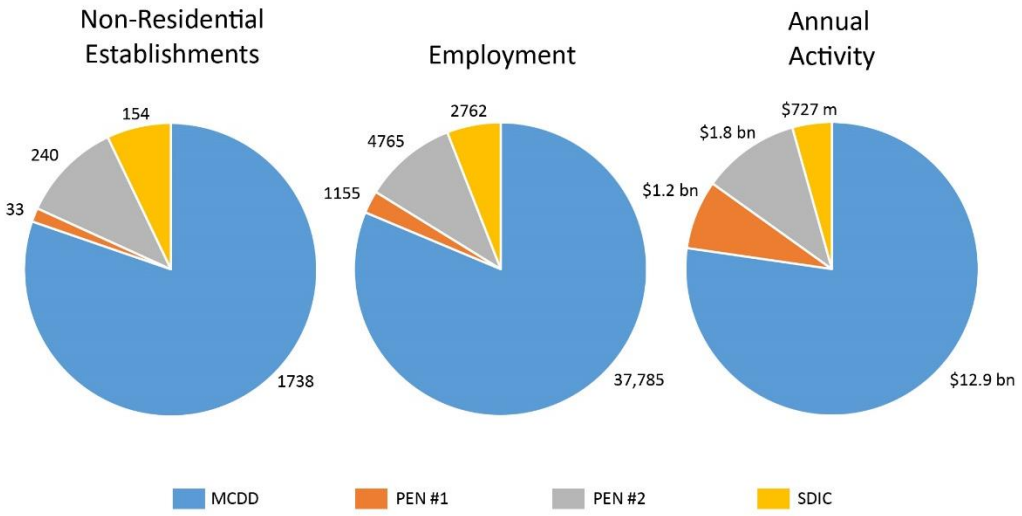
Figures 2 and 3 illustrate the diversity of land use mixes across the four districts. Although residential properties comprise close to half of the tax lots in the corridor, they are small in total acreage and are notably concentrated within PEN #2 and small portions of MCDD and SDIC. Commercial land use is far less concentrated, and makes up significant portions of each district. Notably, approximately 86% of PEN #1's land is publicly owned (including Portland International Raceway and Portland Expo Center).

The land type distribution creates significant problems for PEN #1. The dominance of rural tract and park land and vacant property reduces the ability to collect revenues in the district. Because overall property values are relatively low in PEN #1, the property tax caps tend to be lower. This limits the ability to collect all types of property tax revenue, including drainage district revenues.

II. Economic Profile

Activity within MCDD drives most of the economic indicators in the Columbia Corridor (Figures 4). This is unsurprising, given that MCDD contains the most land and also includes properties such as Portland International Airport. With 1,738 establishments, MCDD has more non-residential activity than PEN #1, PEN #2, and SDIC combined. This disparity is even more apparent when considering other economic indicators: with 37,785 employees, MCDD encompasses 81% of all employment within the corridor and produces 77% of annual economic activity. Economic activity in the Columbia Corridor is dominated by the wholesale trade industry (totaling $12 billion in all districts),[8] with smaller but significant presence of other sectors such as retail, construction, manufacturing, and transportation/warehousing operations. The Port of Portland currently occupies over 40% of the total area of MCDD and over 25% of the total area of the four districts combined, and contributes significantly to overall economic activity in the area.

Figures 4 – Economic Activity (2014) by District[9]



Source: Infogroup, 2014

[8] Infogroup business activity database. Data accessed: April 2014.
[9] Infogroup business activity database. Data accessed: April 2014.

III. Financial Profile

As with the districts' economic and geographic characteristics, the resources and financial requirements of the four districts vary significantly. In the context of constrained revenue generation and growing costs, this variation will prove relevant under all potential governance structures.

The four drainage districts are financed primarily through the collection of assessment revenue, collected at the same time as Multnomah County property taxes.[10] The formula for calculating the assessment levied on an individual landowner is based on acreage and, in some districts, the portion of the land surface which is impermeable. Some landowners also pay a flat fee as part of the overall revenue requirement. This formula is explained in greater detail in Appendix A.1 (pg. 27).

Because MCDD, PEN #1 and PEN #2 are governed under ORS 547 and district assessments are levied through the property tax system, the actual imposed assessment amounts for each property owner are limited by Oregon property tax laws, notably Measure 5. Measure 5 limits general government taxes (which include drainage districts) to 1% of real market value (RMV). In the case that general government taxes exceeds this cap, then each corresponding taxing district would need to reduce taxes proportionally for the tax lot until total imposed government taxes equal the 1% cap[11]. SDIC is incorporated under ORS 554, which specifies a different governance structure and assessments are not subject to Measure 5 or 50 property tax limits. These property tax regulations result in complex interactions between the Columbia Corridor drainage districts' revenue collection capabilities, real estate market fluctuations, and any changes in other taxing districts within the same region, which we examine in further detail later in the report.

Table 3 – Revenue Sources (2014-15) by District

	Assessment Revenue	Contract Revenue[12]	Loan	All Other	Total Revenue
MCDD	$3,735,067	$1,192,195	$25,000	$57,000	$5,009,262
PEN #1	$281,494	-	$608,870	$450	$890,814
PEN #2	$762,822	$16,550	$791,130	-	$1,570,502
SDIC	$232,359	-	$25,000	$7,300	$264,659
Total	**$5,011,742**	**$1,208,745**	**$1,450,000**	**$64,750**	**$7,735,237**

To arrive at the total amount of revenue to be raised through the assessment mechanism, each drainage district tracks their expenditures by type for the previous year (illustrated in Table 3). As Table 4 makes clear, the revenue requirements and revenue sources vary widely between districts. Note that these figures are complicated by cross-district administrative costs paid to MCDD.

Table 5 shows the growth rate in each expenditure category between FY 2013 and 2014. Overall expenditures increased, despite decreases in some expenditure categories. Each district drew down

[10] Although many publically-owned properties are not subject to property taxes, most nevertheless pay drainage district taxes.
[11] Local option levies are compressed before other government taxes. Other government taxes (including drainage district assessments) are compressed proportionally until the cap is reached.
[12] Includes IGAs between MCDD and the other districts

reserves during FY 2014, meaning they spent more than their revenues. When considering the potential expenditure and revenue growth over the next several years, it is important to note that significant capital outlays may occur to address aging infrastructure and as part of the accreditation process.

Table 4 – 2014-15 District Expenditures

	Personnel[13]	Materials/Services	Capital Outlay	Debt	Total Expenditures
MCDD	$2,103,650	$1,119,750	$1,083,000	$735,417	$5,041,817
PEN #1	-	259,178	-	$28,190	$909,738
PEN #2	-	534,702	$1,146,130	$11,300	$1,692,132
SDIC	-	190,908	$89,000	$2,500	$282,408
Total	**$2,103,650**	**$2,104,538**	**$2,939,500**	**$777,407**	**$7,926,095**

Table 5 – Annual Expenditure Growth, 2013-14 to 2014-15

	Personnel	Materials/Services	Capital Outlay	Debt	Total Expenditures
MCDD	13%	-17%	78%	2%	17%
PEN #1	0%	62%	-13%	-25%	-1%
PEN #2	0%	8%	63%	0%	40%
SDIC	0%	-42%	-41%	-53%	-42%

[13] MCDD staff provides administrative services to the other districts.

Data and Methodology

The district geographic and economic profiles above were developed through an aggregation of data from Oregon geospatial databases[14], Census Bureau estimates, and commercial establishment information from Infogroup. Infogroup's database aggregates establishment level data related to size, employment, location, and activity. NERC geocoded this data and clipped it using the drainage district boundaries.

Financial information was provided by MCDD, and reflects the districts' 2014-15 approved budgets and 2013-14 independent financial audits performed by Robert G. Yingling, Jr., CPA.

The main data sources used for the remaining analysis in this report are the property-specific tax assessments which MCDD provides to Multnomah County as part of the annual property tax collection process, the county's property tax rates, and certified property tax rolls. Using the assessed and real market values, we calculated the total property tax levied and imposed (after compression) for each property.[15] MCDD also provided us with information on the structure of each property's drainage district assessment. The districts have different methodologies for tax calculations based on acreage, percent impermeable surface, and location. After recreating the tax calculation for each property, we were able to alter future assumptions in order to create a model capable of estimating scenario outcomes.

We reviewed plans for future capital improvements in the districts and consulted with MCDD to establish hypothetical funding obligations for several future scenarios. These scenarios are developed to simulate larger capital outlay obligations, and will help establish distributional impacts of these expenses on property assessments across districts. A full explanation of each budget scenario appears in the following section.

[14] See http://www.oregon.gov/DAS/CIO/GEO/Pages/sdlibrary.aspx

[15] For more on this process, see NERC's 2014 report "Oregon Property Tax Capitalization: Evidence from Portland."

Assessment Modeling

Cost distribution and revenue generation in the four Columbia Corridor drainage districts are key aspects that factor into the examination of the overall governance structure. Given the substantial capital and/or maintenance expenses associated with district operations, a solid understanding of how costs will be distributed and covered by revenues under different governance structures is critical. Analysis of this issue required NERC to develop a model that could recreate the current assessment methodology used in each individual district, as well as simulate assessments and revenue collection should the districts consolidate under a single governance structure and assessment methodology. A full breakdown of our reverse-engineered assessment methodology for all districts is included in Appendix A.1 (pg. 27). This section presents the important inputs and results of NERC's modeling.

I. Potential Governance Structures

The exact nature of how the four districts will consolidate, or even whether or not they will indeed consolidate, is unknown at this time. Each scenario covered by our analysis considers three governance structures, developed with input from district staff, in order to capture a broad range of possibilities.

First is a business-as-usual ("BAU") structure in which the districts remain distinct, non-consolidated entities that operate in the near future much as they do in the present.

Next considered is a consolidated "unified ORS Chapter 547 district" in which costs and revenue generation are aggregated from and distributed across the entire Columbia Corridor drainage district region. In this scenario ("Consolidation"), the services that drive costs – flood control, peak and average stormwater management, and indirect and administrative requirements – are performed by a single entity and assessments are levied in the same manner as they currently are in the individual districts, with rates derived from cost drivers applied to a property's total and impervious square footage. The consolidated district's assessments are assumed to be subject to property tax compression and limitations, as is presently the case in all districts but SDIC.

The third governance structure in which the consolidated district forms in such a manner that assessments are not subject to property tax compression (as is presently the case in SDIC) would require legislative change. Below, we report the total taxes levied and the total actually imposed after the effects of tax compression for each budget scenario. If the unified district formed in a way that assessments were not subject to compression, the amount levied for each district would be the same as the amount imposed. Thus, the "levied" amount reported for each district would equal the "imposed" amount under this [hypothetical] third governance structure, with zero compression loss. For clarity, duplicate columns are omitted from the results tables.

Figure 5 – Governance Scenarios Summarized

Scenario #1: BAU	Scenario #2: Consolidation	Scenario #3: Incorporation
•PEN #1, PEN #2 & MCDD remain drainage districts; assessments limited by property tax caps •SDIC remains as a drainage improvement company; assessment not limited by property tax caps	•PEN #1, PEN #2, MCDD & SDIC consolidate into one "unified district" •All assessments limited by property tax caps •Expenses and revenues are shared within the consolidated "unified district"	•PEN #1, PEN #2, MCDD & SDIC consolidate into one drainage improvement company •All assessments **not** limited by property tax caps •Expenses and revenues are shared within the consolidated company

II. Budget Scenarios

Many of the properties within the four districts were under (or near) tax compression in 2014-15. In short, this means that levying any increase in costs to properties may bring them into compression or further compress existing levies. In other words, increasing the drainage district tax levied on a property that is already under compression means that the drainage district will only be able to collect a portion of the desired increase. Table 6 shows the share of properties currently experiencing compression in each district.[16]

Table 6 – 2014-15 Property Tax Compression

	# of Properties	Share of Properties w/ Compression	2014 Compression Loss	2014 Compression Loss (% of Levied)
MCDD	2732	23%	$279,476	10%
PEN #1	44	52%	$200,328	41%
PEN #2	1180	78%	$137,958	16%
SDIC	188	0%	0	-
Total	**4144**	**38%**	**$617,762**	

These figures hint at the complication that compression would add to any significant increase in drainage district expenses regardless of whether or not consolidation occurs. More than three quarters of properties in the PEN #2 district are already in tax compression, constraining future tax collections therein. MCDD and PEN #1 likewise contain a large share of properties in compression. Note that properties in SDIC are currently assessed via unlimited taxes for drainage district services; district assessments there are thus not subject to compression. Furthermore, there may be uncertainty in the estimated revenue collection in MCDD, PEN #1 and PEN #2 if there are changes in the permanent rates of other taxing districts in the region or if additional taxing districts are created.

Considering the broad ranging costs, diverse geography, and differences in the constraint of property tax compression in the individual districts, it is clear that the three governance structures described above would lead to different revenue generation outcomes under different budget scenarios. We considered three potential future budget requirements for the year 2019-20, applied to each of the governance structures described above.

In each budget scenario, property values as well as general district expenses are assumed to have grown annually by 3% since 2014-15. We also assumed that no new bond-levied costs arise after the conclusion of MCDD's General Obligation bonds debt service in 2017-18, so that all expenses are allocated to property owners by the individual districts (except SDIC) by limited levies that are subject to property tax compression.[17] It is also important to note that we assume that all other property tax rates remain constant from 2014. This assumption is necessary because we cannot know the tax rate plans of other levying entities; if any other taxing authority raises its rates, drainage district taxes could be compressed accordingly. Finally, in each budget scenario, the merging [through consolidation or incorporation] of the individual districts into one is assumed to bring with it some efficiencies related to reduced MCDD

[16] These figures include exempt publicly-owned properties.
[17] This also assumes that new capital expenses will be paid for through limited general government assessments.

staff time spent on the administration of four separate operations. A single drainage district would bring economies of scale with regards to communications and board management, budgeting, contracts, accounting, and other administrative needs. Based on input from MCDD staff, these costs savings total approximately $112,000 per year in our calculations. A complete breakdown of staff time reductions is included in an appendix.

The first budget scenario ("Stable Growth") considers only steady 3% annual growth of district costs and property values between 2014-15 and 2020. This implicitly assumes that the districts do not face significant new capital costs in 2019-20, and that property values do not spike in either a positive or negative direction. This scenario represents a lower bound of potential budgets in our analysis.

The remaining two budget scenarios incorporate both the general growth from the first scenario and new capital expenses at two different levels. The actual magnitude of these expenses is still unknown at this time; in lieu of hard numbers, we derive estimates from the districts' 2014-15 and draft 2015-16 Capital Improvement Program (CIP) plans. We consider both low ("Low Expense") and high ("High Expense") scenarios, in which the districts face average 2015 – 2018 CIP costs from the FY 2015-16 and FY 2014-15 documents, respectively[18]. Table 7 summarizes the additional expenses included in each of the three budget scenarios.

Table 7 – Budget Scenario Capital Improvement Costs

	Steady Growth	Low Expense	High Expense
MCDD	0	$725,000	$1,506,000
PEN #1	0	$9,000	$438,000
PEN #2	0	$79,000	$524,000
SDIC	0	$119,000	$233,000
Total	0	$932,000	$2,701,000

[18] These figures are necessarily hypothetical and represent realistic ranges, rather than any actual year's plans. Further, they reflect only normal capital improvements; capital expenses related to the Levee Improvement Program are not captured by this study.

III. Assessment Modeling Results

The three key results of each scenario are (1) the total amounts levied and imposed on property owners in each district and modeled consolidated district, (2) the distribution of those amounts across districts, and (3) the expected loss of revenue to property tax compression. Each result depends on both district governance structure and the amount levied on property owners; for clarity, this section presents the results of each budget scenario across the three forms of governance. Once again, all of the scenarios considered below is set in FY 2019-2020.

"Stable Growth" Budget Scenario

For the Stable Growth scenario, it is assumed that both property values and district expenses will rise by 3% annually between 2014-15 and 2020, and that no new significant capital costs would arise in that period. This would bring the total assessment levied on property owners in all districts to approximately $5.2 million if the districts remain unconsolidated, or $5.1 million if they consolidated (after $112,000 in administrative cost savings). Table 8 summarizes the levied costs, revenue, and compression loss for the Business as Usual and Consolidation governance structures. Table 9 presents the change in distribution of levied costs across districts between governance structures.

Table 8 – *Steady Growth* Scenario Results

	Business as Usual			*Consolidation*		
	Levied[19]	Imposed[20]	Compression Loss (% of Levied)	Levied	Imposed	Compression Loss (% of Levied)
MCDD	$3,363,177	$3,034,848	10%	$3,419,258	$3,104,824	9%
PEN #1	$571,677	$337,239	41%	$374,059	$278,632	26%
PEN #2	$1,016,842	$858,105	16%	$677,232	$580,316	14%
SDIC	$279,368	$279,368	0%	$648,096	$598,628	8%
Total	**$5,231,064**	**$4,509,560**	**14%**	**$5,118,645**	**$4,562,401**	**11%**

Table 9 – *Steady Growth* Scenario Results, Cost Distribution

	Business as Usual	*Consolidation*
	Levied (% All-District Total)	Levied (% All-District Total)
MCDD	64%	67%
PEN #1	11%	7%
PEN #2	19%	13%
SDIC	5%	13%
Total	**100%**	**100%**

[19] Levied taxes are charges to property owners before any tax compression. If the districts were to unify as an incorporated entity not subject to compression, "Levied" would equal the amount actually "Imposed".
[20] Imposed taxes are actually charged to property owners after tax compression.

Under a business-as-usual (BAU) regime, each district would levy its own costs to the property owners within its borders. In this case, the amounts ultimately imposed are distributed across the districts as they are in 2014-15. For example, MCDD incurs the highest amount of expenses in its district (roughly 64% of all expenses), and that same amount of 64% is assessed to property owners located within MCDD. The total compression loss for all districts would total $722,000 (roughly 14% of the levied total), but that figure ranges from as high as 41% (for PEN #1) to 10% (for MCDD), setting aside compression-free SDIC.

Outcomes in this scenario change under a consolidated governance structure. The first important result is the reallocation of levied costs across the properties that now comprise one unified district (Table 9). As noted, consolidating the districts would distribute their collective costs across all properties in the combined district. Because the districts generate different costs, and are made up of properties with varying geography and property values, aggregating overall expenses will result in a shift in the individual responsibilities of each district's assessed properties. For example, 11% of overall costs are associated with PEN #1 under the current governance structure (the first column of Table 9), whereas those properties would be collectively assessed only 7% of overall costs after consolidation. The shares levied to PEN #2 and SDIC differ even more dramatically between BAU and Consolidation scenarios. Nineteen percent of costs are levied to PEN #2 properties under the current regime, but only 13% are allocated after consolidation. Conversely, properties in SDIC are associated with 5% of overall costs under the current regime, but the amount assessed to those properties rises to 13% after consolidation. For those in SDIC, the dollar amount levied more than doubles relative to business-as-usual in the consolidated district.

Again, expenses are assumed to be levied as limited general government taxes (capped at 1% of the property's real market value) in the new consolidated district, including for those properties originally in compression-free SDIC. This means that, despite their now significantly larger share of responsibility for overall costs, properties originally in SDIC would pay $599,000 to consolidated district assessments in 2019-20 - $49,000 less than the amount levied upon them that year. In all, compression loss would total $556,000 under a consolidated governance structure, or 11% of the amount levied. Consolidation would thus avoid $165,000 in compression loss, partly attributable to $112,000 in administrative cost savings[21], compared to business-as-usual.

Under the "Incorporation" governance structure discussed above, wherein the combined district is assumed to form in such a way that assessments are levied as unlimited taxes that are not subject to compression, the responsibilities of property owners in each district are identical to those levied under the consolidation structure, and compression losses equal zero. Because these values are already included in Table 8, they do not appear under a separate "Incorporation" heading.

[21] Note that the compression loss reduction of consolidation is achieved both by directly reducing expenses (e.g., through administrative efficiencies) and by distributing levied expenses across more properties.

"Low Expense" Budget Scenario

Expanding the budget requirements of the Stable Growth scenario with additional capital outlays amplifies the patterns just described. In the "Low Expense" scenario, districts (and a consolidated district) are responsible for the 3-year average capital improvement expense found in the latest CIP planning report. Table 10 summarizes the assessment modeling results for each governance structure. In general, the relatively low additional expenses of this scenario result in similar outcomes to the Steady Growth scenario above. We focus on important points of divergence below.

Table 10 – *Low Expense* Scenario Results

	Business as Usual			***Consolidation***		
	Levied[22]	**Imposed[23]**	**Compression Loss (% of Levied)**	**Levied**	**Imposed**	**Compression Loss (% of Levied)**
MCDD	$4,092,360	$3,643,299	11%	$4,044,629	$3,631,637	10%
PEN #1	$580,677	$340,144	41%	$442,473	$302,144	32%
PEN #2	$1,095,842	$918,224	16%	$801,095	$677,574	15%
SDIC	$398,368	$398,368	0%	$766,631	$678,719	11%
Total	**$6,167,247**	**$5,300,036**	**14%**	**$6,054,829**	**$5,290,073**	**13%**

Table 11 – *Low Expense* Scenario Results, Cost Distribution

	Business as Usual	***Consolidation***
	Levied (% All-District Total)	**Levied (% All-District Total)**
MCDD	66%	67%
PEN #1	9%	7%
PEN #2	18%	13%
SDIC	6%	13%
Total	**100%**	**100%**

If the districts remain distinct and unconsolidated, the overall compression loss would total just over $867,000, or 14% or the levied amount. Individually, this loss would range from as low as 11% ($449,000) for MCDD to as high as 41% ($241,000) for PEN #1.

The reallocation of costs between districts seen in the Steady Growth scenario above continues in the presence of new capital costs under a consolidated governance structure. Comparing the shares levied in both governance structures, the latter would lead to substantially lower assessment shares for the properties of PEN #1 and PEN #2, and higher shares for MCDD and SDIC. However, the addition of new

[22] Levied taxes are charges to property owners before any tax compression. If the districts were to unify as an incorporated entity not subject to compression, "Levied" would equal the amount actually "Imposed".
[23] Imposed taxes are actually charged to property owners after tax compression.

capital expenses in this scenario complicates the redistribution of costs after consolidation. To illustrate, consider that the CIP expense associated with MCDD is nearly three times that of all other districts combined ($725,000). If the districts were to remain unconsolidated, the entirety of this expense would be levied to properties within MCDD. Under consolidation, however, this large sum is spread across the entire combined district. This means that, although MCDD's share of the total levied rises from 66% to 67% in a consolidated district, its properties' collective responsibility is actually $48,000 lower than it would be as an independent district in absolute terms. In other words, the ability to spread the district's large CIP cost among the properties of all four districts partially offsets consolidation's shift of responsibility toward MCDD seen in the previous scenario.

Close examination of this pattern reveals an important result of the assessment modeling: consolidation could tend to redistribute costs across a larger number of property owners, whereas costs are currently levied within the geographic district in which they originate. In the Steady Growth scenario, we saw that total levied costs shifted away from PEN #1 and PEN #2 toward the properties of MCDD and SDIC in a combined district. With the addition of dissimilar capital expenses in each district, this shift persists, but some of MCDD's large capital expense is likewise shared with all properties of the combined district, constraining the net effect.

As in the previous scenario, consolidation appears to mildly alleviate overall compression loss, avoiding $102,000 in total compared to business-as-usual[24], but naturally introduces compression losses for the properties within SDIC. After the effects of compression, properties in PEN #1 and PEN #2 pay $38,000 and $241,000 less, respectively in a consolidated district. This reallocation of costs away from PEN #1 and PEN #2 is the major source of compression loss savings with consolidation, but represents a large increase in responsibility for properties in SDIC.

[24] Once again, the avoided compression loss stems partly from the expected administrative cost savings of consolidation.

"High Expense" Budget Scenario

In the final budget scenario, districts (and a consolidated district) generate capital improvement expenses in 2020 that reflect 3-fiscal-year averages of their 2014-15 CIP projections. Table 12 summarizes the assessment model results for this scenario.

Table 12 – *High Expense* Budget Scenario Results

	Business as Usual			*Consolidation*		
	Levied[25]	Imposed[26]	Compression Loss (% of Levied)	Levied	Imposed	Compression Loss (% of Levied)
MCDD	4,877,867	4,287,321	12%	5,229,332	4,610,112	12%
PEN #1	1,009,677	424,140	58%	572,077	345,793	40%
PEN #2	1,540,842	1,225,713	20%	1,035,743	846,294	18%
SDIC	512,368	512,368	0%	991,183	826,894	17%
Total	**7,940,754**	**6,449,542**	**19%**	**7,828,335**	**6,629,092**	**15%**

Table 13 – *High Expense* Budget Scenario Results, Cost Distribution

	Business as Usual	*Consolidation*
	Levied (% All-District Total)	Levied (% All-District Total)
MCDD	61%	67%
PEN #1	13%	7%
PEN #2	19%	13%
SDIC	6%	13%
Total	**100%**	**100%**

Capital expenses of this magnitude clearly reveal the patterns seen in previous scenarios, as the variation in new expenses narrows and compression constraints become increasingly binding within each district. Overall compression loss would approach $1.5 million under a business-as-usual governance structure. This could range from 12% in MCDD to over 58% lost in PEN #1, where the dollar amount lost to compression ($585,000) would actually exceed the district's large CIP expense added that year.

The redistributive effects of consolidation are clearest in this scenario, wherein each district's expenses are high enough to substantially shift the assessments to individual properties. Cost allocations to PEN #1 and PEN #2 fall significantly, and cost allocations to MCDD and SDIC rise after consolidation. MCDD's total expenses represent 61% of the all-district total, but these properties are collectively assessed 67%

[25] Levied taxes are charges to property owners before any tax compression. If the districts were to unify as an incorporated entity not subject to compression, "Levied" would equal the amount actually "Imposed".
[26] Imposed taxes are actually charged to property owners after tax compression.

of that total in a consolidated district. PEN #1 and PEN #2 generate the next highest expenses in this scenario, representing 13% and 19% of the all district total, but the properties of each would be assessed a much smaller portion of that total in a consolidated district. In absolute terms, the properties of MCDD and SDIC are assessed $322,000 and $314,000 more (7.5 percent and 61.3 percent), respectively, in a consolidated district than they are as independent entities. Conversely, PEN #1 and PEN #2 are assessed $78,000 and $379,000 less as part of a consolidated district.

As new expenses grow within each district, so too does the amount of compression loss avoided by consolidation. Once again, the sources of this savings are direct administrative expense reductions and the redistribution of costs away from the two districts with the most binding compression constraints towards MCDD and SDIC, where the compression burden is relatively lighter. In this High Expense scenario, consolidation could avoid approximately $292,000 in compression loss overall in 2019-20 compared to business-as-usual.

IV. Assessment Modeling Conclusions

These results illustrate important considerations regarding potential drainage district governance changes. First and foremost, the reallocation of costs in a consolidated district would likely result in lower loss of revenues to property tax compression. As expenses grow, the amount of this loss avoided increases; the ability to spread new outlays across more properties could become an important source of revenue in the case of large capital requirements. The second key finding flows from the first: consolidation could reallocate costs across the districts in a way that is independent of how those costs originate. In other words, current district assessment methodologies (if carried over to a new consolidated district) could shift costs away from properties in the district where they are incurred toward districts with larger drainage “footprints”. Finally, given the current administrative overlap between the four districts, consolidation could generate moderate annual savings of more than 2,100 staff hours, equivalent to approximately $112,000 in payroll expenses. Although the budget scenarios analyzed here do not reflect any actual planning every figure is drawn from the range found in each district’s CIP and Capital Asset Maintenance plans. The results above thus reveal realistic, if hypothetical, outcomes in terms of revenue sufficiency and cost distribution that the districts would need to simultaneously consider in their governance decision making.

The governance structures and scenarios considered by this study were chosen with input from district staff in order to inform a broad range of circumstances, and do not necessarily reflect any actual planning or likely outcome. All of the results above rely on assumptions regarding the future nature of cost drivers in the districts, the assessment methodology that would be adopted by a consolidated or incorporated district, the districts’ responsibility and funding sources for new outlays, and the absence of new taxes levied by other government entities. They are also limited by a margin of error that includes data imperfections and a compression calculation that may omit temporary local option levies, leading to small miscalculations on individual assessments. These limitations are discussed in depth along with the full assessment methodology in an attached appendix.

Governance Structure

Any changes to the drainage district governance structure have the potential to create confusion amongst policymakers and the public during a period when broader capital changes may be occurring. In order to ensure that stakeholders are appropriately represented, the transition to any new structure must be transparent and the potential benefits need to be clearly communicated.

Consolidation may result in administrative efficiencies and economies of scale, but if the current governance system is kept in place it would give *de facto* veto power to a small number of large land owners[27]. Efficiency can usually be calculated using dollars and cents, but the fairness of the governing structure is harder to measure. The goal of the consolidation process is to formulate a new governance structure which creates new efficiencies, but leaves all stakeholders feeling adequately represented.

The four drainage districts differ in acreage, number of properties, public/private ownership, developed land, residences, businesses, and employees. MCDD dominates in almost all these categories, but the other districts have unique qualities which makes a governing structure which can address the differing management needs necessary. For example, PEN #1 has more publicly owned property while PEN #2 has a higher portion of residences compared to the other districts. The question of governance for the consolidated districts hinges on an ability to preserve governing mechanisms which are responsive to the needs specific to each community. A challenge will be to make sure that MCDD, with its greater commercial value, can be fairly represented while preserving representation of the unique characteristics of PEN #1, PEN #2, and SDIC.

This section will review possible steps to be taken that could help transition successfully to a consolidated governance structure. We will discuss both merger considerations as well as steps to consolidation.[28]

I. Merger Considerations

Communications with the Board

The advantages and disadvantages of consolidation need to be clearly explained to the four boards. If the four boards agree that consolidation is desirable, the next step is to create a "Memo of Understanding" outlining the intended outcomes of the consolidation process. Then, discussion can turn to the feasibility of consolidation, and issues related to preserving fairness in the representation structure.

Communications with Landowners

Working with staff, the four boards must reach out to landowners and communicate the reasons for consolidation as well as the intended outcomes. This is an ongoing dialogue that will eventually include governance issues in the consolidated districts. Landowners need to be informed and engaged early on that the boards are working on the feasibility of consolidation in order to feel that their concerns are being addressed from the beginning of the process.

[27] Currently, landowners receive votes equivalent to the acreage owned.

[28] This section does not purport to be legal counsel. Thus, this section will not discuss the legal steps involved in consolidation, but will give mention to related legal statutes that may need to be followed or require change. Board Composition and decision-making structures will be suggested, but recommendations for specific actions that the board should undertake after formation are beyond the scope of this study.

Mission and Charge of New Board

Although the previous four districts have some unique characteristics, the mission and charge to boards would remain relatively unchanged.

II. Steps to Complete Consolidation

In order to form one district with one governing board, the following outlines general steps necessary for the consolidation of governance.

- **Intent to Merge**: This is a statement document that follows the Memo of Understanding which demonstrates a commitment among the four boards that they will work earnestly together to accomplish a successful consolidation. This statement can include standards decided upon by board members related to goals for addressing important issues. This is not the final agreement for consolidation, but a statement which illustrates the goals that the process is moving toward.

- **Dissolution of Previous Districts**: Before one district and one board can be formed, the current districts need to be dissolved or reorganized. This could entail all four districts dissolution and forming a new district or keeping the MCDD and dissolving the other three, having them join MCDD. For SDIC, the process appears straight forward in ORS 554.300. For PEN #1, PEN #2, and MCDD, dissolution and reorganization is governed by ORS 548.900 to 548.955.[29] Careful attention should be paid to the statutes as to whether there are any financial changes needed to the district before dissolution (for example, the case of SDIC, ORS 554.300 (3), "…before release of all debts and obligations…").

- **Consolidation of ORS Chapter 547 Drainage Districts.** There are four steps to dissolution/reorganization under the statutory scheme: (1) Petition; (2) notice/potential election; (3) court validation/distribution of assets and liabilities; and (4) federal consent.

    - **Step One (Petition):** Reorganization/dissolution must be initiated by petition of a majority of the qualified electors and landowners of a District, representing at least one-half of the acres assessed by the District. ORS 548.905(1). A petition must include a dissolution or reorganization plan, the cost of dissolution, and a description of the assets and indebtedness of the District. ORS 548.905(2). A complete petition must be submitted to the District secretary. Within 10 days, the petition must be reviewed by the District secretary and the county clerk, who must certify that the petition is signed by the requisite number of qualified signers. ORS 548.915(3). Once validated, a petition is officially filed by the District secretary. Id.

    - **Step Two (Notice and Potential Election):** Within 30 days of acceptance of a petition for filing, the District secretary must publish a notice in a newspaper of general circulation in the District. ORS 548.920(1). The notice must state that the petition has been filed and that the District will be submitting the petition to the circuit court for validation, unless a petition is received and signed by 10% of the electors and

[29] This process applies to both drainage and irrigation districts. See ORS 548.900(1).

landowners in the District requesting an election within 30 days of the date of publication of the notice. ORS 548.920(2). If no petition for an election is filed, a district proceeds to Step 3. If a valid election petition is filed, the District board is required to call a special election in the District to be held not less than 30 nor more than 60 days after the filing date. ORS 548.925(1). Notice of the election is published once a week for three weeks and the election is held in the same manner as the election of officers in irrigation districts.

- **Step Three (Court Validation):** Within 60 days after a successful dissolution/reorganization election or 90 days after the filing of the dissolution/reorganization petition, if no election is held, the District must file a petition in the circuit court. ORS 548.930. The petition must request the court to "examine and determine the regularity and correctness of the proceedings and to determine and adjudicate the rights and liabilities of all interested parties in a manner which is equitable, reasonable, and in the best interests of the parties." ORS 548.930(1). Broad notice is given, and any interested party may appear. ORS 548.940 and 548.950. The court is given broad powers to amend, approve, or deny the plan.

- **Step 4 (Federal Consent):** If a contract exists "between the district and the United States for the construction, operation or maintenance of necessary works," a judgment may not be entered by the court "until written assent to the judgment by the Secretary of the Interior has been filed with the Court. " ORS 548.945. (There is a good argument that this section would only apply to reclamation works and not flood control works, because Interior has no authority over the latter.)

- **Dissolution of Drainage Improvement Company.** The process for dissolution of a DIC is considerably less onerous than for a drainage district: the board of directors calls a meeting of the members and gives notice of proposed dissolution and the reason why dissolution is deemed advisable. ORS 554.300(4). If two-thirds of the members vote to dissolve the DIC, the board, acting as a board of trustees, may proceed to liquidate the corporation. ORS 554.300(3), however, prohibits a DIC from dissolving "until payment or release of all debts or obligations of the corporation, including every contract or agreement with the federal or state government, or its or their constituted governmental authorities or agencies, or the assumption of its obligations by another with the consent of all parties." SDIC would have to agree to dissolved and be annexed as part of the reorganization of the Chapter 547 districts, and the reorganized ORS 547 District would have to agree to assume these obligations.

- **Reorganization as a DIC**. The other option would be to reorganize all of the drainage into a single DIC. ORS 554.375 to 554.390 provides a process for the reorganization of Chapter 547 drainage districts into Chapter 554 DICs, but this authority sunset on December 31, 2004 and so a legislative amendment to the statute would be necessary to authorize this action. ORS 554.410.

- **Number and Composition of Supervisors**: Staying with the language of Chapter 547. 105, a district can have three to five directors. Possible legislative changes would be needed if this number is desired to be different. Otherwise, the consolidated board must follow ORS 547.

III. Path to Consolidation with Least Legislative Changes

This section is a suggested path to moving to consolidation. Once again, this does not constitute legal advice. Additional guidance should be provided by the districts' legal counsel.

Although the intent is to have the list be chronological from top to bottom, some of these items are interrelated and simultaneous:

1. Deliver to boards requested information about economic and governance implications of consolidation.
2. Inform Landowners about discussions on possible consolidation.
3. Each board votes internally by majority. All four boards must vote in favor of consolidation.[30]
4. The landowners of each district vote internally by majority. All four district landowner votes must be in favor of consolidation.
5. Follow Chapter 547 as closely as possible for all governance considerations
6. Boards vote on Memo of Understanding
7. After due diligence on question of consolidation, boards vote on Intent to Merge.
8. Conduct the petition process to dissolve PEN #1, PEN #2, SDIC and extend MCDD district to include these former districts.
9. Establish name of consolidated district as "Multnomah County Drainage District" or whatever name the districts prefer.
10. Following ORS 547.110 through 547.150, elect five supervisors.
11. Continue stated mission and operations as a district.

Once the process begins, there will inevitably be complications or issues put forth by stakeholders which will cause diversions from this process.

IV. "Idealized" Path

Our recommendations for increasing the probability of successfully consolidating and continued good governance are listed below. There must be multiple changes to statutes required to accomplish these steps. Some of these changes are enumerated in the Merger Considerations subsection. Where possible, we will add an asterisk (*) to the item if we feel this could entail a legislative change:

1. Deliver to boards requested information about economic and governance implications of consolidation. Inform Landowners about discussions on possible consolidation.
2. Each board votes individually with the majority prevailing. All four boards must vote in favor of consolidation.

[30] This is legally required only for SDIC but is good practice for all boards.

3. The landowners of each district vote individually with the majority prevailing. All four district landowner votes must be in favor of consolidation.
4. Boards vote on Memo of Understanding
5. After due diligence on question of consolidation, boards vote on Intent to Merge.
6. Initially, the new board will be made up of all current supervisors and directors. As terms expire, the new board will be reduced to eight supervisors.*[31]
7. Once the Board is at 8 supervisors, at the next annual meeting of landowners, the board composition to be voted in will come from three landowner areas: Commercial, Public (Government), Residential. Vacant lands will be categorized based on zoning. Two supervisors from each landowner area plus two independent supervisors. Independent supervisors cannot be landowners in the district, but could live and/or work in the district, or come from outside the district. Entire member based landowners vote on supervisors as stated in ORS 547.105.*
8. Skill assessment for the Board. Candidates for the Board will possess skill sets as needed to fulfill the total skill set for the Board.*
9. Supervisors serve four years and have staggered terms (547. 105 is presently three years).*
10. Meeting frequency the same as it is now for any one district.
11. Establish name of new district as "Multnomah County Drainage District".
12. All other governance operations follow ORS 547.

This "idealized" path ensures that all districts feel represented in the consolidation. It may be unwieldy to have up to 20 supervisors at the start,[32] but this also allows time for any changes that may be needed that were not identified in the plans to consolidate. If the weighting of votes continues to be driven by acres-owned, the voting power by the public sector will dominate. Public sector ownership is well above 60% in PEN #1 and MCDD, and the top five largest property owners dominate in PEN #1 with over 95% of the acreage. The largest portion of residential ownership is within PEN #2.

To maintain the diverse representation that exists to some degree in the current four district system, we propose the creation of three landowner categories of Commercial, Public, and Residential. The independent supervisor will ensure that there are benefits and costs from the drainage district that extend beyond the landowners in the district.

This consolidated "unified district" governance structure is ambitious and the needed legislative changes may be difficult to pass, but some of the motivations behind these suggestions should be kept in mind when formalizing the governance of the new consolidated district, regardless of its eventual form.

[31] Includes two board members each from the Commercial, Governmental, and Residential landowners, with two additional independent board members. Good practice does not necessitate an odd number of board members to avoid ties, but if that is desired, it is recommended to drop one of the independent board members. Adding an additional independent board member would over-represent this group relative to other land owners.
[32] The boards currently work in large groups through 4MAT meetings.

Conclusion

This study focused on major questions related to drainage district consolidation in the Columbia Corridor, arising from the geographic and economic diversity that characterizes the four entities. The magnitude and type of economic activity within the districts varies considerably, and results in a broad range of operational resources and levee system requirements.

Given the variation in the districts' physical footprints, land use mixes, and levee system requirements, drainage district stakeholders must understand the options for financing their operations in the context of growing costs, property tax constraints, and potential large capital outlays in the near future. NERC's assessment modeling established that, generally speaking, consolidation could side step some of the tax compression that will become increasingly binding for individual districts as capital requirements grow[33]. If recent near-term capital planning is accurate, the ability to spread costs over a wider set of properties could prove beneficial to districts already experiencing heavy tax compression losses. This would come with a trade-off, however, if district assessments continue in their current form in a new combined district. Consolidation could potentially redistribute costs in ways that significantly change the tax liabilities of individual property owners (and individual districts). Because it is possible that new costs could become the responsibility of all property owners in a "unified district" (as opposed to property owners geographically associated with the costs), this trade-off should be considered carefully when consolidation decisions are eventually made.

The second, and far more analytically challenging facet of consolidation addressed in this report is the administrative path that a successful merger would take. In addition to navigating a rigid statutory environment, the districts will be charged with maintaining adequate representation for stakeholders while designing a merger that achieves stated fiscal goals. Our analysis and recommendations focus on questions of efficiency and equity in the context of a large operational merger. We present both an "idealized" path to consolidation that weighs efficiency and equity heaviest, and also a path that gives more consideration to legal obstacles.

The continued operation of the greater levee system is vital to the property owners and residents within the districts, and also to the economic health of the region. Our analysis shows that changes to administrative structures will necessarily shift the burden of funding operation and investment if district assessments continue in their current form, and that changes in governance will require great care to conclude successfully. It is vital as MCDD works toward ensuring that operation of the levees system remains sustainable that the benefits of capital improvements are widely understood and that trade-offs to the area and individuals are adequately considered.

[33] Of course, incorporation in such a way that a unified district's assessments are not subject to tax compression, as is presently the case in SDIC, would avoid all compression loss but would require legislative change.

Appendix

A.I Assessment Model Methodology

Drainage district tax assessments are currently based on four (or five, in the case of PEN #2) cost driver categories. A district's total costs associated with each category determines the "unit rate" that will be applied according to a property's total area, impervious area, or a related measure. The sum of assessments for all cost drivers equals a property's total assessment levied by the district.

NERC's assessment model recreates these calculations in order to establish a "business-as-usual" baseline for future revenue projections. Each district's assessment method is described below in non-technical terms. Please note that, as our modeling only considers district costs that will be levied via general government taxes (with the exception of those in SDIC), bond tax assessment calculations have been omitted.

MCDD:

Unit rates are calculated from the district's four cost driver categories (**Flood Control, Stormwater Average, Stormwater Peak, and Customer/Indirect**) as follows:

District Total **Flood Control** Cost/Total District Area (square feet) = *Flood Control unit rate*

District Total **Stormwater Average** Cost/Total District Area[34] (ft^2) = *Stormwater Average unit rate*

District Total **Stormwater Peak** Cost/Total District Impervious Area (ft^2) = *Stormwater Peak unit rate*

District Total **Customer/Indirect** Costs/Total District Area (ft^2) = *Customer/Indirect unit rate*

Unit rates are applied to assessments according to a property's Total Area and Impervious Area, as follows:

Flood Control unit rate x property's Total area (ft^2) = **Property's Flood Control Assessment**

Stormwater Average unit rate x property's Total area (ft^2) = **Stormwater Average Assessment**[35]

Stormwater Peak unit rate x property's Impervious area (ft^2) = **Stormwater Peak Assessment**[36]

Customer/Indirect unit rate x property's Total area (ft^2) = **Customer/Indirect Assessment**

The sum of these four assessments equals a property's total assessment for general government taxes levied by the district.

PEN #1:

PEN #1 uses a single general unit rate, calculated from the district's grand total cost. It is applied according to a property's total area (in square feet), as above, to calculate its total assessment.

[34] In 2014-15, MCDD used a modified total that omitted the area of "levee lots" from this total.
[35] In MCDD, properties designated "levee lot" are not charged Stormwater Average costs.
[36] In MCDD, properties designated "levee lot" are not charged Stormwater Peak costs.

PEN #2:

PEN #2 uses the same four cost driver unit rates that comprise MCDD assessments (Flood Control, Stormwater Average, Stormwater Peak, Customer/Indirect), plus another category for Secondary Levee related costs. The Stormwater Peak unit rate is calculated from the district's total impervious area as well as total area designated as "gravel". The Customer/Indirect unit rate is a flat per-property fee:

> District Total **Secondary Levee** Cost/Total Levee Lot Area (linear feet) = *Secondary Levee unit rate*
>
> District Total **Stormwater Peak** Costs ÷ [Total District Impervious Area (ft2) + (0.8 × Total District Gravel Area (ft2))] = *Stormwater Peak unit rate*
>
> District Total **Customer/Indirect** Costs ÷ # District Properties = *Customer/Indirect unit rate*

PEN #2's Flood Control and Stormwater Average assessments are calculated from a property's total area, as with MCDD above. Stormwater Peak assessments are based on a property's impervious square footage as well as 80% of its area designated as "gravel" (in linear feet). Properties designated as "levee lots" are also subject to Secondary Levee assessments:

> *Stormwater Peak unit rate* × [Impervious area (ft^2) + (0.8 x Gravel Area (lf))] = **Stormwater Peak Assessment**
>
> *Secondary Levee unit rate* × Levee lot area (lf) = **Secondary Levee Assessment**
>
> *Customer/Indirect unit rate* × 1 **= Customer/Indirect Assessment**

The sum of all five assessments equals a property's total assessment for general government taxes levied by the district.

SDIC:

Assessments in SDIC follow the same calculations as MCDD above. Currently, these assessments are levied via bond-type taxes that are not subject to compression.

Unified District Assessments:

In order to generate revenue estimates comparable to the "business-as-usual" calculations above, we assumed that the costs driving individual districts' assessments would continue to drive a combined district's requirements in the same proportion as they did in 2014-15. We thus derive unified district cost drivers as the weighted average distribution of the individual districts.[37] We further assume that unit rates will be derived as they are currently for the assessments of MCDD and SDIC, according to properties' total square footage and impervious square footage. Finally, we include the extra Secondary Levee cost driver from PEN #2's assessments, with a unit rate calculated as is done currently from the total area designated as "levee lot".

2014-15 cost drivers for each district (except PEN #1) are summarized in Table A.1. Table A.2 summarizes the weighted cost drivers and associated unit rates for the combined unified district.

[37] Because PEN #1 uses only a single general unit rate, the proportion of costs associated with its cost drivers is unknown. The "unified district" weighted averages are thus based on the remaining three districts.

Table A.1 – 2014-15 District Cost Driver Distribution

	Flood Control	Stormwater Peak	Stormwater Ave	Secondary Levee	Customer/ Indirect
MCDD	7.54%	10.73%	11.88%	0.00%	69.84%
PEN2	18.37%	39.16%	23.41%	0.66%	18.40%
SDIC	24.90%	21.59%	21.26%	0.00%	32.25%

Table A.2 – Unified District Cost Driver Distribution and Unit Rates

	Flood Control	Stormwater Peak	Stormwater Average	Secondary Levee	Customer/ Indirect
Cost Driver Share	11.62%	16.33%	14.89%	0.09%	57.07%
Unit Rate ($)	0.0018	0.0068	0.0023	0.7156	0.0090

A.II Property Tax Compression

In general, the amount of revenue actually collected from district assessments is significantly lower than the amount levied by taxing entities due to property tax compression. The intricacies of tax compression are complicated; for a full discussion please refer to NERC's 2014 report *Oregon Property Tax Capitalization: Evidence from Portland*.[38] We include a brief description of the issues relevant to this study below.

With the exception of SDIC, Columbia Corridor properties' non-education general government total tax bills cannot exceed 1% of real market value. Any taxes levied in excess of this limit are "compressed" in proportion to their share of the total levied amount, until the total tax bill is sufficiently reduced. This means that drainage districts' revenue collections are directly affected by the taxes of other taxing entities. For example, consider a hypothetical property with a general government tax cap of $100. Assume that the drainage district levies $70 for services, and that all other government entities charge $50[39], so that the total amount levied on the property exceeds its cap by $20. In this case, the amount that the drainage district is allowed to actually impose on the property after compression is $58.33 – the district's share of the total tax bill (58.33%) times the tax cap. If the drainage district's costs increase such that it must levy $80 total on the property, and other entities still levy $50, the total actually imposed by the district becomes $61.50. This illustrates the challenges of revenue generation in a district where many properties' taxes are at or near their compression cap. As the costs of services increases, it becomes increasingly difficult to collect the necessary revenue to cover them.

In general, the amount of non-education, general government tax actually imposed on a property by a taxing entity can be estimated by:

T_A = (Amount levied by Entity A) ÷ (property's 1% tax cap)

[38] http://www.pdx.edu/nerc/projects.

[39] For simplicity, we assume that none of the other general government taxes are option levies, which would be compressed first.

T_B = (Amount levied by all other entities) ÷ (property's 1% tax cap)

$[T_A \div (T_A + T_B)] \times$ (property's 1% tax cap) = Amount imposed by Entity A

Our assumptions regarding changes to T_A, T_B, and property tax caps over time are discussed in the main body of this report.

A.III Unified District Administrative Savings

In each of the budget scenarios analyzed in this report, we assumed that consolidation would generate some economies of scale in the form of reduced administrative staff time. We based this amount on input from MCDD staff, as summarized in Table A.3.

Table A.3 – Administrative Savings from Consolidation

Role	FTE Reduction	Fully Loaded Rate	Estimated Annual Savings
Communications and board management	0.15	46.72	$14,577
Budgeting	0.15	43.35	$13,525
Contracts and office management	0.1	43.27	$9,000
Accounting/Payroll	0.125	51.44	$13,374
Finance director	0.35	63.04	$45,893
Finance support	0.15	51.44	$16,049
Total	**1.025**		**$112,419**

A.IV Data Limitations

The assessment model developed by NERC is designed to estimate cost distribution, property tax compression, and revenue generation for the districts, but should not be considered a tool that correctly calculates individual property's tax bills. A few data limitations required solutions that introduce some degree of inaccuracy to our estimates (importantly, this error is between 1% and 2%). Data limitations and their solutions are discussed below.

- *Preliminary property information from Metro*: Metro has recently updated its database of impervious area for properties in the districts. The model utilizes the latest data for almost all properties. However, a limited number of properties' updated information is not available from this source. For these properties, previous values from drainage districts' 2014-15 assessment spreadsheets were used instead. This may overlook recent development on some tax lots.
- *Missing property information*: In a very limited number of cases, a useable property tax lot identifier was missing from district spreadsheets. Because we use these identifiers to uniquely assign tax liabilities, we were required to manually seek and enter property's physical information.
- *Option Levy tax compression*: As noted, option levies are prioritized under current property tax compression rules. NERC's assessment model is based in part on property tax rates available from Multnomah County; however, option levies are not available from this source (and are

often flat fees, rather than calculated from rates). They are thus overlooked by our estimates and tax compression simulations.