

# Jordan River Restoration Project



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Dear Laura,

The [Jordan River Restoration Project](#) is an experimental pilot urban ecosystem restoration design project of the [Earth Restoration Network](#), itself a platform for information sharing and collaborative design of eco-restoration projects worldwide. Since my organization is based in Salt Lake City and I live on the Jordan River, I have an ethical obligation to participate in the restoration project most closely qualifying as being IMOBY ("In My Own Back Yard").

The attached document contains detailed recommendations of my organization for additions to and enhancements of the Jordan River Commission's draft Best Management Practices document for the Jordan River corridor.

I commend the Jordan River Commission, its staff and consultants for compiling this important document. It is skillfully and pleasantly designed, and its sections on preservation of open space, preservation of wildlife habitat size and connectivity, native plant restoration, improvement of natural river function, management of

stormwater, and green site management practices are a revolutionary departure from our long history of abuse and neglect of natural values in the corridor.

Our comments are directed to areas where we believe that to be meaningful the broad generalities of this document must be undergirded by a structure of iron-hard specifics, or the whole point of compiling such guidelines will be lost in a haze of platitudes and ambiguities.

It is obvious to anyone living on the Jordan River—as I have now for 9 years—that cities are rezoning land from agricultural or open space to commercial zoning categories in helter-skelter fashion. The unfortunate reality is that absent immediate and dramatic intervention this behavior will continue until every remaining acre of open space has been consumed into the "built environment", leaving little more than a narrow strip of trees and grass at river's edge, where once there were vast areas of wetlands filling the river's flood plain and meander corridor.

Ironically this living reality is precisely the opposite of the future envisioned in the final [Blueprint Jordan River](#) report, articulated as follows on page 57:

Preserve current open space. Within the proposed Jordan River natural corridor, there are approximately 7,300 acres of undeveloped land. Of this land, nearly 3,800 acres is slated for development. **As much open space as possible should be conserved by ensuring that land designated as open space remains that way, and that land slated for development is protected.** This step is a top priority and involves working with municipalities to share the open-space vision and identify the highest priority lands for acquisition and protection. Survey results indicate that the public is willing to pay for open space acquisition if it goes to protecting the river.

There is not the least ambiguity in this stated goal. The *Blueprint's* vision—I would call it a mandate—is that every single acre of identified open space, whether public or privately owned, and no matter how zoned in current city master plans, must be "conserved"—including all those lands currently "slated for development" in city master plans.

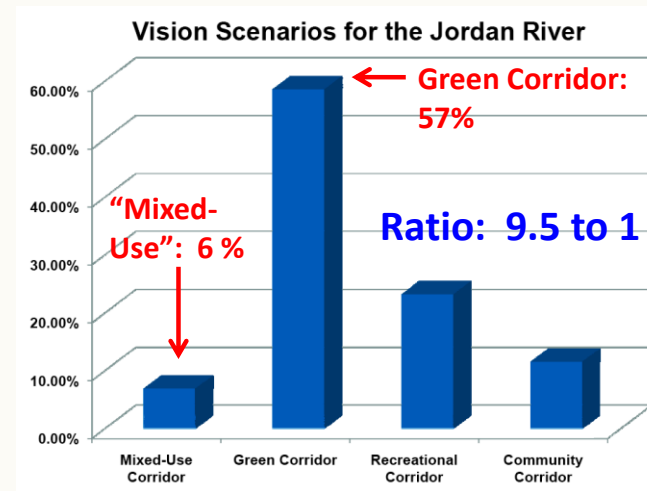
This management prescription is not a mere suggestion or recommendation. Rather it is a mandate arising from one of the most comprehensive planning-related public surveys ever conducted in our region. Two hundred and fifty eight people participating in six workshops, another 150 people in focus groups, countless other stakeholder meetings in cities and communities all up and down the river, and nearly

1,000 people participating in a 44-question online survey—a total of about 3,000 items of public comment in all.

The citizen mandate, as depicted in bar charts summarizing the survey results, could hardly have been clearer.

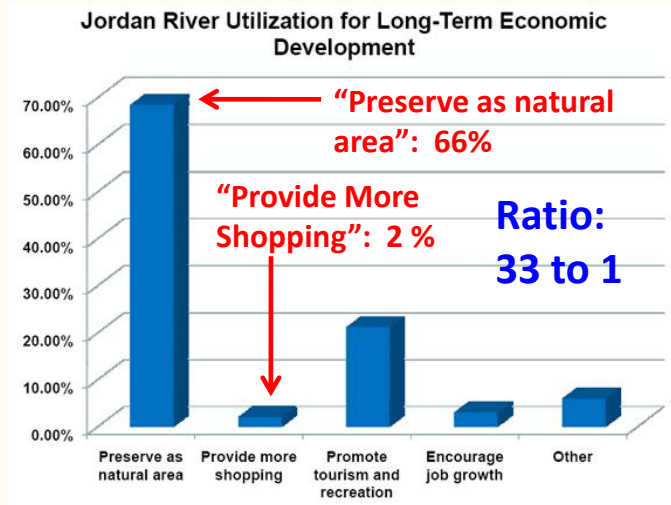


*Blueprint Jordan River public workshop*



By a ratio of nearly ten to one, the public would prefer to maintain the Jordan River as a "Green Corridor" rather than as a "Mixed Use Corridor", with "Mixed Use" serving as the timeworn euphemism for massive and intensive commercial development. But the "green" corridor the public has in mind does not look like a town square, a golf course, or a machined and manicured city park. Rather, by a ratio of thirty three to one, the

public prefers to preserve the river corridor as a "natural area" rather than to have "more shopping" or any other form of commercial development that might "encourage job growth":



Neither golf courses, nor sports fields, nor even parks can compare with "Natural Areas for Wildlife" in their importance to the public.



Thus, by ratios of between thirty and forty to one, the public overwhelmingly supports the preservation—and restoration—of the last remaining fragments of Utah's once abundant natural heritage. This is the mandate bequeathed by the "Blueprint" vision quest to the Jordan River Commission.

The following comments are structured in a bicameral way, because we believe that "best" practice cannot fully be understood except by juxtaposition with "worst" practice. As this report will show, "worst" practice is exactly what we have now. A continuation of current practice would be directly antithetical to the maximum-preservation mandate of Blueprint Jordan River.

All too often, "best" practice guideline documents are actually a political contrivance; a statement not about what would truly be "best" either for people, communities, or the local economy, but rather a statement about what the authors regard as *political reality*. The thrust of our comments here is that current political reality, taken as a baseline, is inconsistent with the "Blueprint" vision, and therefore to achieve the vision certain specific changes to practice are clearly needed. A true statement of best practice must be determinate based on what must change to achieve the vision.

We believe that our job in developing a true statement of "best" practices is not simply to paint a picture of current political realities and thus remain within the comfort zone of the status quo, but rather to describe what would constitute bona-fide "best" practice in an *ideal* world. Under relentless intense pressure from corporate developers with political influence, political compromises will still be made, to be sure, no matter what any best practices document may politely suggest. But our purpose here is to establish the ideal against which such compromises should be measured.

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With best regards,

Ray Wheeler



**Earth Restoration Network**  
**Jordan River Restoration Project**

*At last, a big enough idea...*

# Worst and Best Practices for Riverfront Communities

## Comments on Draft Guidelines Prepared by the Jordan River Commission

Submitted by: Ray Wheeler, Executive Director, [Earth Restoration Network](#)

April 16, 2013

### **A tale of two rivers: "worst" vs "best" scenarios**

It should not be surprising that the Blueprint Jordan River [Final Report](#) (hereafter, [Blueprint](#)) is schizoid with respect to its core mission: painting a "vision" picture of the future of the Jordan River Corridor. The vision depicted by the [Blueprint](#) in its text—that of a green corridor whose remaining open space is protected in full, is directly contradicted by the vision depicted in its maps, graphics, and in its unpublished "economic development" masterplan. The latter shows very clearly no less than 17 major [commercial](#) centers installed upon virtually every large remaining block of undeveloped land existing along the length of the river corridor north of Riverton (with an uncertain future, and probable massive tract housing, programmed for the lands between Utah Lake and Riverton).

Why two different visions? Having sat in meetings of the "Economic Development" subcommittee held prior to the publication of the [Blueprint](#) document, the answer to this

question is very clear to me. The authors of the [Blueprint](#) survey and report had two masters, and these two masters had radically different visions for the future of the river corridor. The vision of river users, neighbors, residents—the public—was for a green corridor in which all remaining open space, no matter how it might be currently zoned in city masterplans, would not merely be "conserved", but would in addition be restored with respect to normal stream function, water quality, native plant life, wildlife habitat, and ecosystem integrity.

However that vision was directly contradicted by an opposing vision presented by the development officers of each participating city. Unsurprisingly, city *development* officers prefer [development](#) to [conservation](#) of open space, wild nature and natural resources. And within the Jordan River corridor, the form of "development" which is most desirable to development officers and city administrators is that which generates the most tax revenue for elected officials to spend: namely, [commercial](#) development, and especially [retail](#)—stores and businesses that will have to pay [retail sales tax](#).



***Trophy homes walling the Jordan River, Thanksgiving Point "River Center"***

This development-oriented vision means not simply trophy homes scattered along the margins of the proposed green corridor—but densely-spaced tract housing marching right to river's edge. It means not simply single-family dwellings of varying large lot sizes, but "dense residential"—e.g., massive and intensive condo and apartment blocks, again marching right down to river's edge. It means not simply corridor-margin-adjacent cafes, coffee shops and boat rental shops, but massive commercial office complexes featuring gigantic, 5-6 story high buildings, immense shopping centers, huge mass transit infrastructure complexes such as the TRAX service center recently installed within the Jordan River flood plain—and around all of these commercial facilities, an ocean of pavement—hundreds, and perhaps ultimately thousands, of acres of pure parking lot.



***Sterling Village, largest apartment complex in Utah at 800 units, towers above the Jordan Parkway trail in South Jordan, River Park "River Center".***

It means not merely bridges where mass transit trains cross over the Jordan River, but densely spaced concentrations of "Transit Oriented Development" ("TOD's")—3-5 story high commercial office towers, condo blocks and shopping centers, such as shown in an artist's depiction of the North Temple TRAX TOD.

# The Blueprint Vision Map: Business as Usual

The **worst practice** vision for the future of the Jordan River Corridor is vividly depicted in the Blueprint "vision" maps appearing on pages 11 to 15 of the final Blueprint report. Here the reality of the commercial development agenda of the plan is depicted in symbolic, graphic form. The Blueprint Jordan River plan envisions a series of so-called "River Centers" (gold stars) and "Transit-Oriented Development" (TOD) hubs (red circles).

The report's illustrations of such centers and hubs typically depict green space and give the illusion of a protected river corridor.

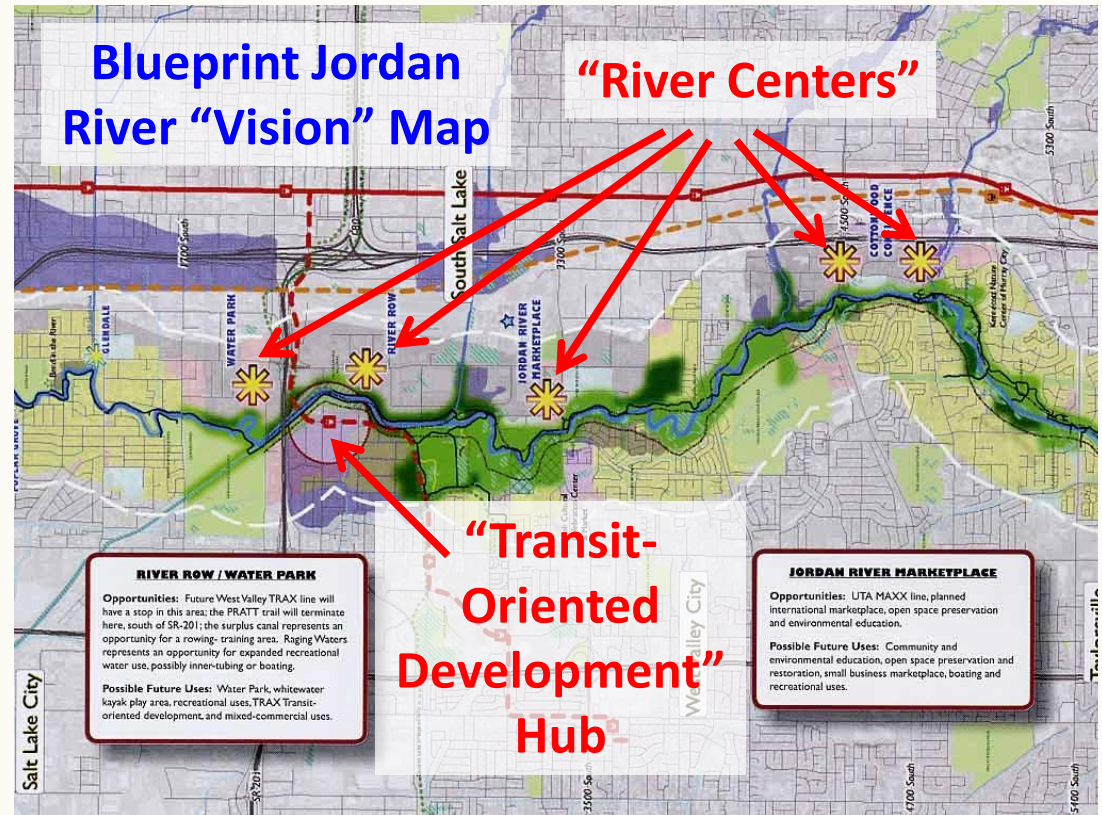
In fact, the current and future reality will be very different. Each gold star and red circle actually represents not a "river" center but a commercial center where dense development (condo and apartment blocks, towering commercial office buildings and sprawling shopping centers) will soon be built at a breakneck pace.



**Transit-oriented development center at North Temple**

That is the vision of the Jordan River corridor depicted upon the maps showing so-called "river centers" strung out across the length of the Jordan River Corridor like beads on a necklace. No less than eighteen of them, currently installed, partially installed, or on the drawing boards, and filling to the brim virtually every major block of remaining open space from Draper to North Salt Lake.

[Jordan River Restoration Project](#)



Comments on Draft Jordan River Commission, "Best Practices for Riverfront Communities"

# Blueprint Jordan River – Proposed Commercial Centers

	Name	Location	City	Size-Acres	Type	"Preferred Uses"
1	Regional Sports Complex	2200 North	Salt Lake City	160	Commercial Recreation	<b>Commercial Recreation Center</b>
2	Rose Park	700 North	Salt Lake City	30	"Neighborhood Center"	<b>Market, Residential, Parks</b>
3	Fairgrounds	North Temple	Salt Lake City	250	Transit Oriented Development	<b>Commercial, Hotel, Boating, Park</b>
4	Poplar Grove/Glendale	900 South	Salt Lake City	15	"Neighborhood Center"	<b>Commercial, Recreational</b>
5	Glendale	California Ave	Salt Lake City	9	"Neighborhood Center"	<b>Commercial, Retail</b>
6	Water Park	1700 South	Salt Lake City	144	Commercial Recreation	<b>Commercial Recreation</b>
7	River Row	2300 South	South Salt Lake	86	Uncertain	<b>Commercial Recreation Center</b>
8	River Row	2300 South	West Valley City	135	Transit Oriented Development	<b>Transit Hub, Commercial Recreation</b>
9	Jordan Marketplace	3300 South	West Valley City	64	"River Center"	<b>Shopping Center, Office, Condos</b>
10	Big Cottonwood Confluence	4100 South	Mill Creek Town	215	"River Center"	<b>Commercial, Office, Community Center</b>
11	Little Cottonwood Confluence	4800 South	Murray	?	"River Center"	<b>Large Commercial, Community Center</b>
12	Bigham Junction	7000 South	Midvale	200	Transit Oriented Development	<b>TRAX, Retail, Office, Condos</b>
13	Gardner Village	7800 South	West Jordan	36	Transit Oriented Development	<b>TRAX, Gardner Village Expansion</b>
14	Sandy/S. Jordan Frontrunner	10200 South	Sandy/South Jordan	175	Transit Oriented Development	<b>Shopping Center, Office, Condos</b>
15	River Park Center	10600 South	South Jordan	120	"River Center"	<b>Retail, Office, Condo, Recreation</b>
16	Draper/Bluffdale Frontrunner	Bangerter Hwy	Draper/Bluffdale	250	Transit Oriented Development	<b>Frontrunner Station, Retail, Office, Condos</b>
17	Thanksgiving Point	Lehi	Lehi	?	Transit Oriented Development	<b>Commercial Recreation Center, Trophy Homes, Retail</b>
18	Lehi Center	Lehi/Saratoga Springs	Lehi/Saratoga Springs	?	"River Center"	<b>Large Commercial, Retail, Condos, Rec Ctr.</b>

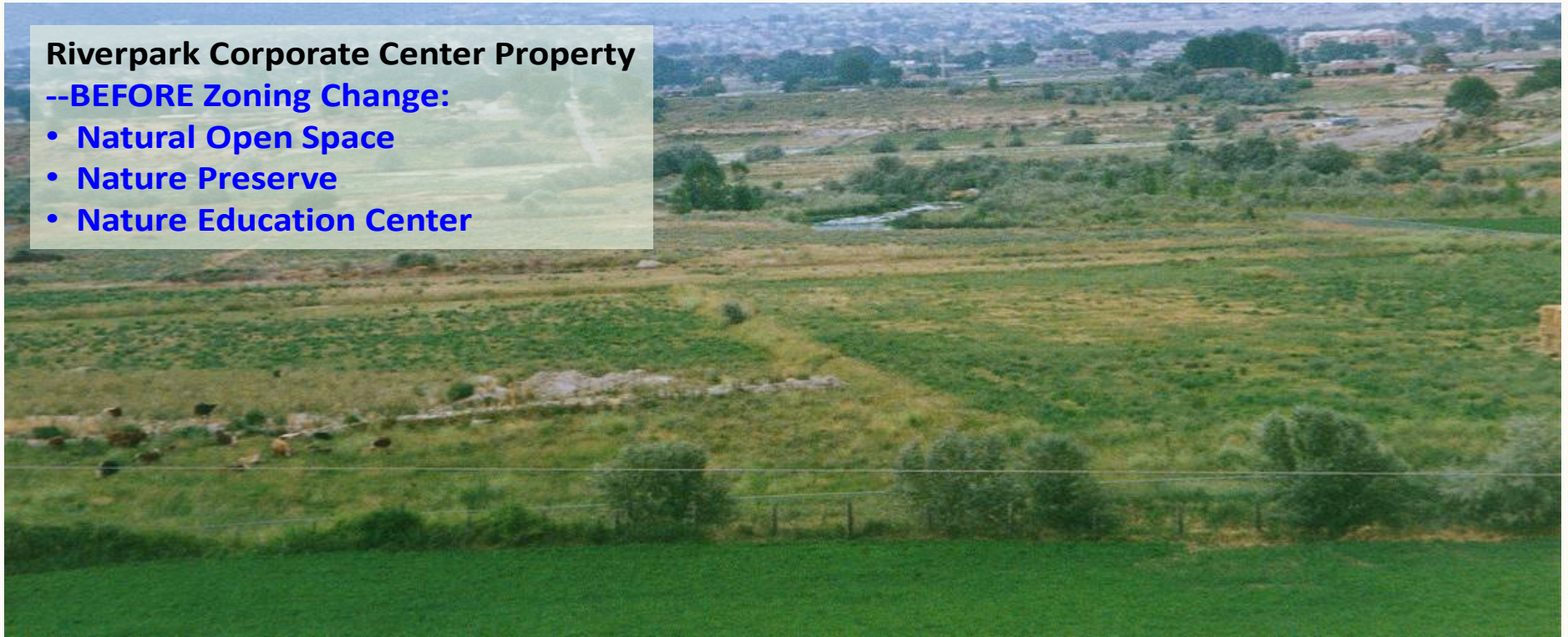




## Riverpark Corporate Center Property

--BEFORE Zoning Change:

- Natural Open Space
- Nature Preserve
- Nature Education Center

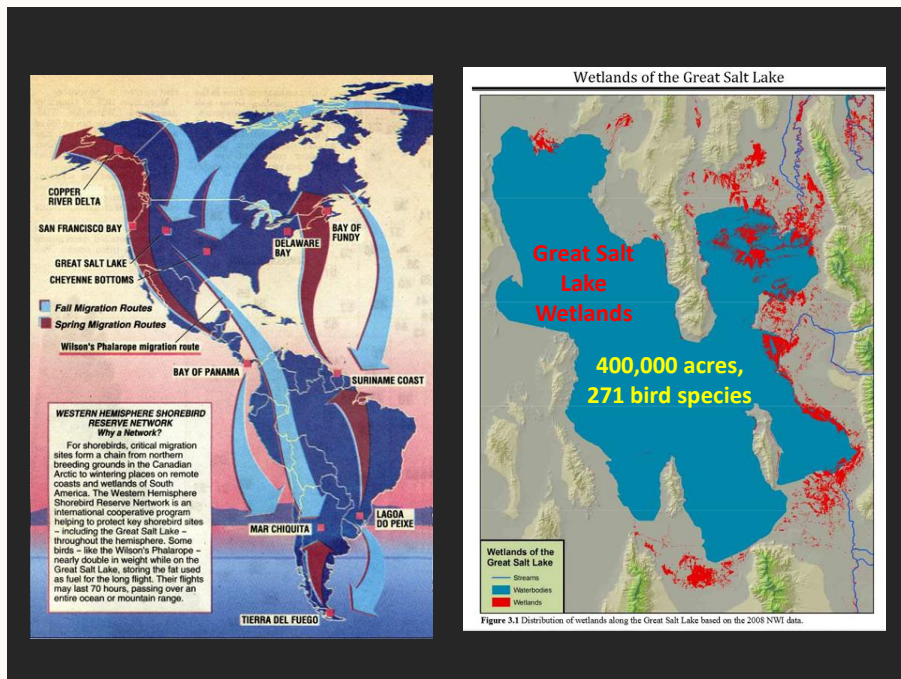


**AFTER Zoning change:**

- Developer instant profit on rezone: **\$19 million**
- 22 buildings up to 6 stories high
- 80 -100 acres of asphalt
- 1.7 million square feet of office space



A sky-stream of beautiful, powerful, adventurous birds is the single greatest natural heritage of our valley and its 15 river-adjacent cities.



Sandhill cranes in flight, photo c. Sherman Bloom



Green Teal, Jordan River at 1000 South



Bird Species	GSL Wetland Population
White-faced ibis	18,000
American avocets	10,000
American white pelican*	50,000
Cinnamon teal	60% of the continents breeding population
Wilson's phalaropes**	500,000
Snowy plovers	50% of the continents breeding population
Marbled godwits	26% of global population
Black-necked stilts***	>65,000

Third largest colony in N. America

World's largest fall staging concentration

Largest Concentration in U.S.

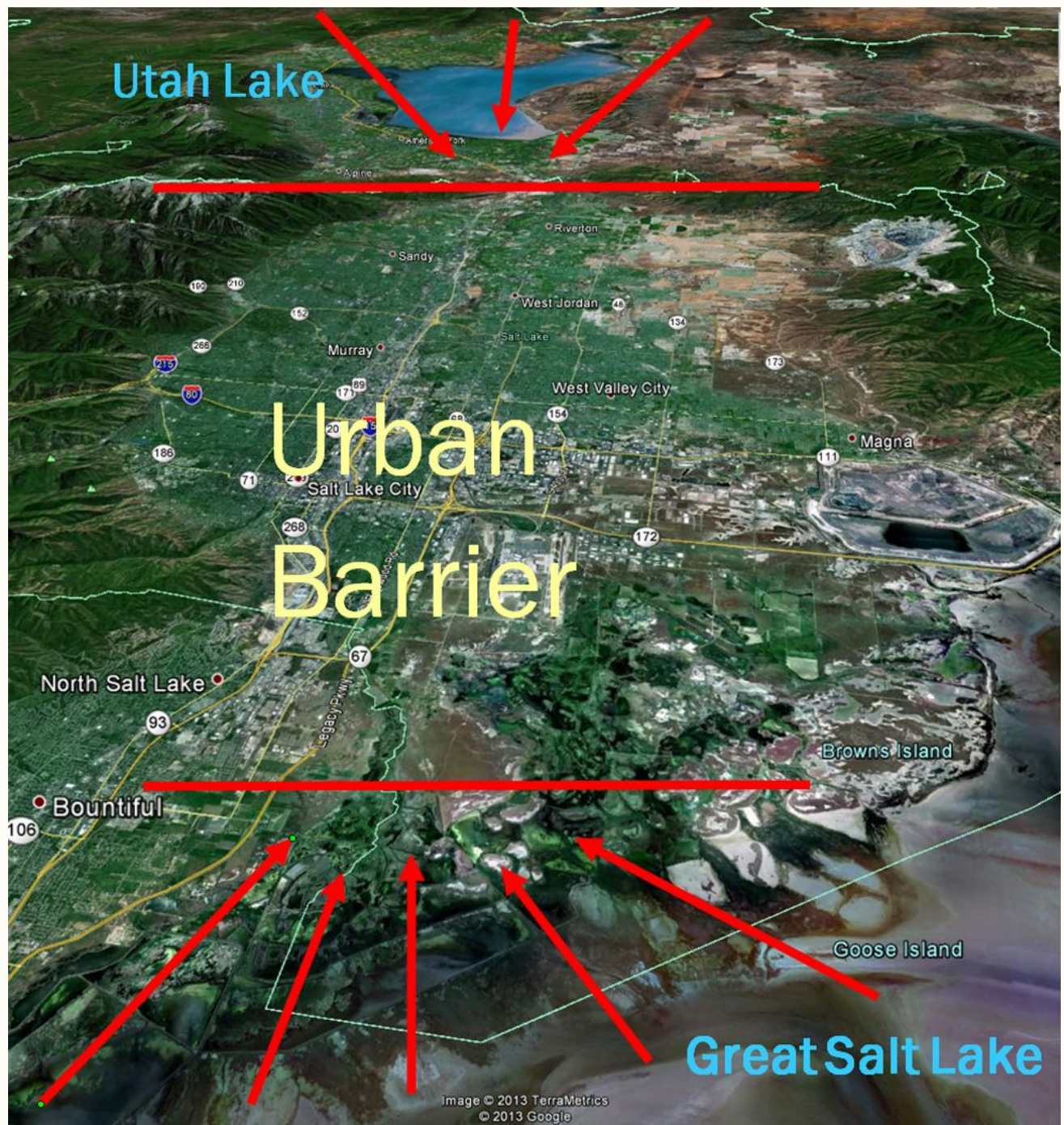
But Salt Lake Valley's most valuable natural asset—its bi-annual sky stream of migrating birds, now faces, in Salt Lake Valley just as everywhere else, a formidable challenge to its future: the urban-industrial Wasatch Front, a massive barrier and choke-point, as the great flocks flow northward in spring from the shorelines of the Sevier river, Sevier Lake and Utah Lake, or south in fall from the vast wetlands of the Great Salt Lake. Directly in their path lies a 50-mile long urban-industrial wasteland crowding down to river's edge throughout the center of Salt Lake Valley.

Do we care about the inexorable, ever-accelerating loss of our natural heritage? Yes, by a ratio of thirty four to one, Salt Lake Valley residents do care.

Do we not already have more than enough shopping malls in Draper, Harriman, Sandy, South Jordan, West Jordan, Midvale, Murray, Kearns, Taylorsville, West Valley City?

Salt Lake Valley residents need and want more shopping malls installed on the last remaining fragments of migratory bird habitat within the meander corridor and active flood plain about as much as the need and want any other form of cancer. The plan to engorge the river flood plain with office complexes, condo blocks and shopping centers is desperately antithetical to the overwhelming thrust of public opinion.

We therefore face two possible futures for our valley. Following below are summaries of these two contradictory visions as they are both painted in the [Blueprint](#) report.



## Worst Practice Vision Summary Statement

This vision, well depicted by the *Blueprint Jordan River* "Vision" maps on pp. 11-14 of the *Blueprint* final report, is for the maximum intensive commercialization and build-out of every remaining large open space throughout the length of the Jordan River from Lehi to North Salt Lake. It would create a string of 20-30 "mixed use" commercial and "transit" complexes, called "River Centers", featuring 5-6 story office buildings, huge condominium blocks, sprawling retail centers and multimodal transportation complexes, each surrounded with thousands of acres of parking lots and all situated within the 500 year flood plain of the Jordan River and therefore perpetually at grave risk for catastrophic future flood damage.

Commercial centers located within the river flood plain will be subsidized through a combination of low interest government loans and below-cost or partially to fully taxpayer-subsidized critical infrastructure build out (roads, sewer, utilities etc.), using funding mechanisms such as Redevelopment Area (RDA), Community Development Area (CDA), Economic Development Area (EDA) or Special Improvement District (SID) designations and "tax increment" financing (all property tax benefits from commercial up-zoning flow to the developer in the form of subsidies for low-cost loans or infrastructure.) Such lucrative public subsidies would allow the river-adjacent shopping centers and office complexes to outcompete existing commercial centers elsewhere, particularly in the downtown areas, of river-adjacent cities, causing those more central commercial facilities to atrophy such that the once-vital city centers begin to rot away

from disuse and neglect, in turn requiring new public subsidies to be "redeveloped" after they lose market share and commercial vitality, and creating a perpetual cycle of subsidy and debt. With the destruction of all remaining open space, the huge potential economic benefits of a restored riparian natural corridor, and restored wildlife populations, will be lost even as cities and school districts struggle to provide basic services after deficit-spending to provide generous subsidies to river developers. Adding to this heavy economic burden, in future years taxpayers will be further burdened with the costs of catastrophic flood damage and emergency disaster funding.

To fortify housing and commercial development centers built right to river's edge from crumbling into the river, with each passing year the Jordan River channel will be further straightened, dredged, channelized, bermed, diked, walled with stone, concrete and rip rap, denuded of trees and vegetation, and subsumed within a forest of towering office buildings and a sea of parking lots. Its only remaining outdoor recreation feature, the Jordan River Parkway trail, will remain where it is, perilously close to water's edge and thus choking off any potential for wildlife movement up and down the river bank. With the systematic hardening of river-adjacent landscapes the ever-greater sediment and pollution load in Jordan River water will ensure that the water quality continues to decline in the future just as it has throughout the past 166 years, a mute testimonial to an uncharacteristic failure of the Mormon pioneer stewardship ethic.



**Typical business as usual worst practice Jordan River floodplain encroachment, streambed channelization and fortification, Murray**

# Best Practice Vision Summary

A true "best" practices vision is much larger than simply to preserve isolated, postage-stamp-sized tracts of land not already targeted for development—the table scraps of urbanization and industrialization. Rather, it calls for the permanent preservation of ALL remaining parcels of undeveloped land along the river corridor, to whatever degree that may be possible. It calls for recognition that the entire river corridor from beginning to end is one coherent ecological as well as geographic entity. It proposes that restoration of natural systems is far and away the highest and best use of the river corridor as a whole.

We can and should have swing sets, picnic areas, skate parks, soccer and baseball fields, landscaped parks and pedestrian-friendly shopping malls precisely where they are most needed: embedded within and therefore conveniently close to every neighborhood throughout the valley—not concentrated within the only river corridor the city will ever have, and not swallowing up wetlands that constitute a critical link in a chain of life running across the continent from Canada to Mexico.

This alternative vision calls not merely for preservation but for restoration. The vision is not merely for water that meets minimum EPA water quality standards, but for water so clean that native fish can thrive; water clean enough to swim in, and one day, even to drink.

In place of parking lots and industrial complexes, this vision is for wetlands teeming with waterfowl, amphibians, and mammals. Instead of town houses and shopping malls, it envisions vast flocks of ducks and geese rippling across the heart of our cities on their transcontinental journeys. Instead of an arrow-straight open sewer choked with trash, it envisions an abundant, healthy, meandering river of life.

Essential to this vision is a concerted long-term strategic plan to maximize the size of the natural green river corridor throughout the valley. The potentially immense economic benefits of a generously sized green corridor will be realized in full, as Salt Lake Valley becomes, on the strength of its natural asset, quality of life, and eventual mastery over pollution and urban sprawl, the most prized urban destination for profitable new



**Best case potential:** natural open space remnant, upper Jordan River *c. Anne-Marie Bernshaw*

information economy businesses in the United States, and a showcase for the entire world.

Just as the great work of the twentieth century was to strip-mine the natural resources of this planet in order to build up industry and civilization, the great work of the twenty-first century will be to ensure the survival of life on earth, and incidentally, of human civilization, by restoring the Earth's life support systems at a planetary scale—beginning right here in our own back yards.

Worst Practice	Best Practice
<p><b>Open Space:</b> Maximum feasible development of ALL remaining large blocks of open space into massive commercial "mixed use" and "transit oriented development" facilities. Assumes continual reduction of open space envelope is inevitable; rubber stamps all city master plans with respect to programming for massive commercial centers within the river flood plain and meander corridor</p>	<p><b>Open Space:</b> Preserve ALL remaining open space and create net new natural open space through rehabilitation of underutilized river-adjacent golf courses, urban-industrial blight areas, and industrial brown fields. Expands the natural open space envelope by planning for systematic redesign and repurposing of golf courses and urban industrial brownfields within and adjacent to the river corridor</p>
<p><b>Zoning:</b> Rubber stamps existing policy of categorical, on-demand zoning upgrade from open space or agricultural to commercial zoning categories, with no to minimum setback requirements for the new facilities.</p>	<p><b>Zoning:</b> Immediate comprehensive publicly funded survey of all existing river-corridor adjacent open space to assess and prioritize top candidates both for acquisition and for native plant/ecosystem restoration, relative to cost; combination of regulatory policy, lack of tax incentives for flood plain development, and other policy measures provide powerful economic incentives for open space preservation and restoration.</p>
<p><b>Open Space Resource inventory:</b> Allows maximum expansion of urban commercial and industrial sprawl; this concept codified in the proposed exchange of smaller lot size for minimum enlargement of the natural corridor (90% developed with 10% "fringe strip" of landscaped green space including paved bike path)</p>	<p><b>Open Space Resource inventory:</b> Immediate comprehensive publicly funded survey of all river corridor-adjacent industrial brown field and urban blight areas to identify top candidates for buy-out based on cost-benefit related prioritization scheme.</p>
<p><b>Buffers to Development:</b> Prevent enlargement of minimum setback requirements and continue to rezone from agricultural and open space to commercial to facilitate proposed new commercial centers within river flood plain</p>	<p><b>Buffers to Development:</b> Call for no-build zoning anywhere within the river's meander corridor, with Commission fully empowered to review and approve any and all</p>
<p><b>Ecosystem Restoration:</b> Most existing open space consists of a hardscape recreational "built environment" (landscaping for costly and biologically sterile lawns, sports facilities, parking). No systematic plan to remove invasive plants and restore ecosystem integrity</p>	<p><b>Ecosystem Restoration:</b> Restore most remaining open space with native plants to rebuild ecosystem integrity</p>
<p><b>Stream Function and Water Quality:</b> Continue to hardscape and channelize the river corridor so as to protect housing and commercial office complexes that are constructed right down to the river bank in all remaining blocks of existing open space</p>	<p><b>Stream Function and Water Quality:</b> Restore water quality by widening the effective corridor for natural stream function, by removing dredge berms, restoring extensive river-adjacent wetlands that utilize natural biological filtering mechanisms</p>
<p><b>Parkway trail placement:</b> Jordan Parkway trail clings as closely as possible to river bank, necessitating hardscape fortification of bank to prevent collapse of trail into river</p>	<p><b>Parkway trail placement:</b> Wherever feasible, relocate existing Jordan Parkway trail further away from the river bank to allow better stream function, improved water quality due to reduced sediment loading from unstable stream banks, regrading and slope reduction of stream banks, and enlargement of river-adjacent wetlands and more room for natural stream function (meander action)</p>

Worst Practice	Best Practice
<p><b><u>Riparian Forest Management:</u></b> Streambank trees are systematically removed with no selectivity by species whenever tree branches or trunk extend or lean out over river; no replanting with native trees; whole groves of trees removed to cut down to allow access for heavy equipment to remove a single tree by the river; progressive denudation of river banks; both parkway and river become hotter in summer time; catastrophic loss of habitat and forage for wildlife.</p>	<p><b><u>Riparian Forest Management:</u></b> Riparian forest management plans developed by every city on the river. Trees leaning out over the river remain until lower branches touch water or they fall into river; trees left standing wherever possible until they pose a real river blockage or safety risk; two indigenous trees planted according to management plan for every tree removed; gradual segue from invasive to native tree species.</p>
<p><b><u>Invasive Animal Species Control:</u></b> No beaver control; riparian forests are removed and banks denuded due to combination of excessive "flood control" together with beaver predation especially of native species.</p>	<p><b><u>Invasive Animal Species Control:</u></b> Beaver population control and special beaver management areas allow for natural functions of beavers while preserving tree shading of river to reduce heat loading and algae bloom/die-off; ecologically appropriate tree species are protected from beaver predation with wire wrap</p>
<p><b><u>Transient population management:</u></b> Transients and homeless people living on the river receive even less of a welcome into our communities than wildlife and migratory bird species.</p>	<p><b><u>Transient population management:</u></b> Transients and homeless people living on the river are provided with inexpensive low income housing in return for their work in helping to clean up and restore the river corridor. In return for food and housing the supervision of volunteer coordinators they are trained to remove trash, to remove invasive plants, to plant native plants, and to provide other river corridor restoration services. Those requiring treatment for substance abuse or mental illness receive it through a volunteer-staffed outreach program.</p>

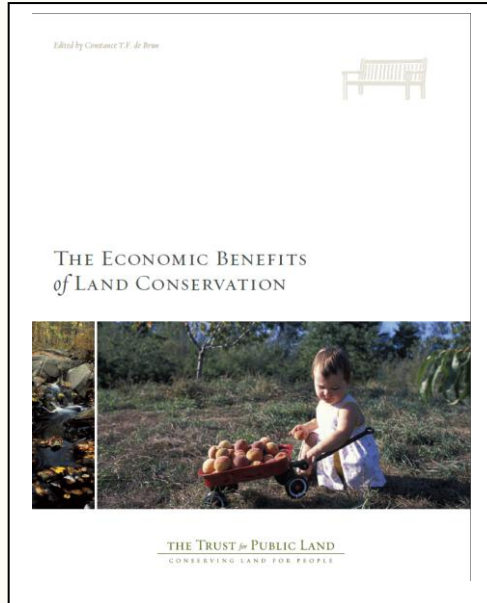


# Recommendations for new sections to be added to the Best Practices Document

## 1.) Region-specific study of the economic benefits of wildlife corridor expansion/improvement.

A "Part 2" of this Best Practices document, again prepared under the supervision of the Jordan River Commission staff, should provide information to all river-adjacent cities, in the form of a comprehensive corridor-wide economic cost-benefit study of—

a.) The economic benefits of establishing, expanding and continuously quality-improving a natural green "Lake to Lake" corridor along the Jordan River throughout Salt Lake Valley, making it an internationally recognized showcase of urban ecosystem restoration that by providing a natural and recreational resource that few other major urban areas have, would serve as a powerful magnet for high tech and information economy industries to establish in, remain in, or relocate to Salt Lake Valley.

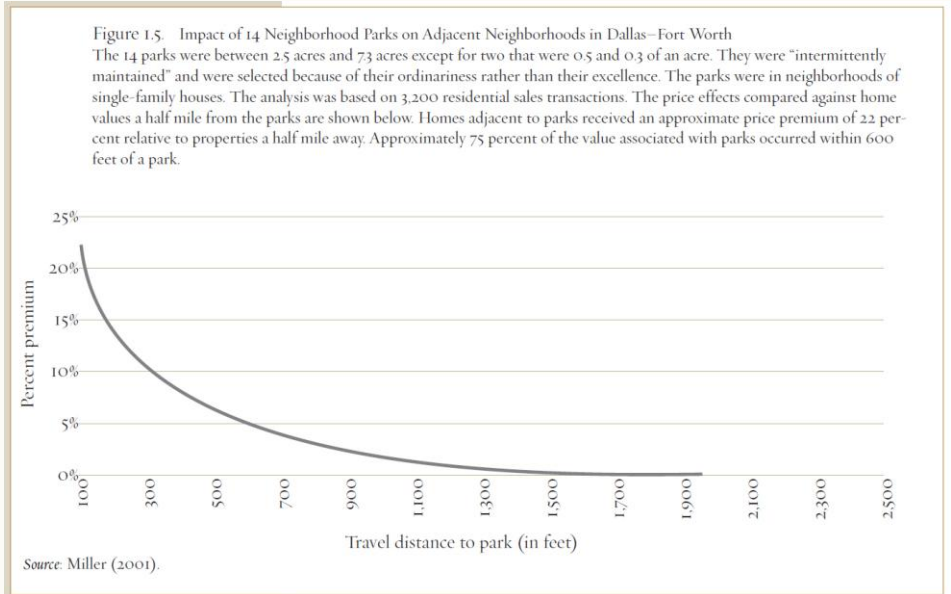


See: The Economic Benefits of Land Conservation, The Trust for Public Land, Land Trust Alliance, 2007

The Economic Impact of Protecting Rivers, Trails and Greenways Corridors, The National Park Service and RTCA, 1995

Economic Impact of Open Space in New Hampshire, The Society for the Protection of New Hampshire Forests, 1999

"Profiting from Preservation", Mosby Heritage Area Association, VA, 2003.



b.) The economic costs of destroying remaining natural open space and wildlife habitat.

### Economic Benefit from wildlife viewing in Utah

- 562,000 participants
- \$5.8 billion per year into Utah economy
- 65,000 jobs
- \$300 million in annual state tax revenues
- Outdoor Retailer trade show alone: \$40 million per year
- Source: Utah Pulse, 8/4/2008, U.S. Fish & Wildlife Service

c.) Case studies of economic as well as lifestyle benefits of the most successful urban riparian restoration programs across the U.S. and the world, with summaries of lessons learned.

d.) A professional/academic economic study comparing the economic costs and benefits of constructing large commercial centers and vast tract housing, apartment complexes or condo blocks within the active 100 year flood plain of the Jordan River, as compared to the costs and benefits of preserving those same flood plain lands as natural open space

e.) A professional/academic economic study assessing all possible sources of funding for the ongoing, large-scale purchase of privately owned open space and/or urban industrial blight areas within the river corridor—and for the costs of restoring such lands to full ecosystem integrity, wildlife habitat potential and natural "river function", including but not limited to the following potential funding sources:

- Tax-increment funding resulting from the establishment of new river-corridor-oriented Resource Development Areas (RDA's), Community Development Areas (CDA's), Economic Development Areas (EDA's) or Special Improvement District (SID's), which are designed to "redevelop" river bottom lands and/or urban blight areas into fully functioning ecosystems and wildlife habitat areas, especially for migratory birds(RDA's) , and/or to enhance economic benefit to hosting communities (CDA's, EDA's), (SID's), and/or to "redevelop"
- Bonding ballot initiatives whose debt could be partially or fully paid down through the allocation of incremental increases in property values and property tax paid in lands adjacent to the an enlarged and restored natural green corridor.
- Federal superfund, land and water conservation fund, or other federal funds earmarked for cleanup of toxic waste sites within the river corridor, water cleanup or wildlife enhancement
- Wetlands, oil spill or other "mitigation" funding
- Matching state, county or municipal funding
- Major funding from charitable environmental foundations and nonprofit environmental organizations such as the Nature Conservancy, the American Land Trust, Utah Open Lands, etc.
- Funding from corporations

## 2.) Corridor-comprehensive inventory of open space and wildlife habitat restoration resources

Before any additional open space can be protected it is necessary to know with great specificity where parcels of open space exist, their current size, ecological value, ownership status, and land valuation. Individual cities usually do not have the resources to do such work, nor would a piecemeal, city-by-city inventory provide a comprehensive, integrated picture of the relative, prioritized cost-benefit

value of every at-risk parcel of open space or wildlife habitat on the river. Such inventories should be holistic: that is, done from the perspective of protecting the integrity of the river corridor as a whole. Therefore this work would best be done either by a central overarching coordinating government agency (Salt Lake County planning or Jordan River Commission), or by a non-profit public or environmental interest group (say, The Nature Conservancy), or by a coalition of such agencies and organizations. However, cities could be partners with Salt Lake County in developing such an inventory and in classifying lands. Therefore this work would best be done either by a central overarching coordinating government agency (Salt Lake County planning or Jordan River Commission), or by a non-profit public or environmental interest group (say, The Nature Conservancy), or by a coalition of such agencies and organizations. Environmental groups such as the Nature Conservancy or the Wild Utah Project may be able to obtain foundation funding to partially or even fully fund such an inventory.

Such an inventory would be an invaluable resource for all Jordan-river-adjacent cities which may wish to expand the green corridor either by protecting previously unprotected open space, by retrofitting/redesigning existing public recreation lands to widen the natural river corridor.

The proposed corridor-comprehensive inventory of natural or ecological resources should include the following components:

a.) Existing unprotected, undeveloped open space. Identify, assess and map (GIS) all remaining undeveloped lands within the meander corridor (500 year flood plain) of the Jordan River, assessing ecological value, wildlife habitat value especially for migratory birds, land ownership, land cost, and assigning a prioritized cost-benefit ranking against all other such areas. [Note: much of this GIS database development work has probably already been done by Envision Utah and Salt Lake County, with additional components potentially available from the Utah Department of Natural Resources.]

b.) Potential new native plant buffers within existing parks and recreation areas. Comprehensive survey of all existing parks, golf courses and other outdoor recreation areas within the Jordan River meander corridor (500-year flood plain). Identify, assess and map (GIS) all such areas (including also privately owned golf courses) to create a prioritized list of the best locations to enhance wildlife habitat connectivity by establishing native plant buffer zones back from river's edge within each park, recreation area or golf course.

c.) Potentially convert existing golf courses and other underutilized recreation facilities. Identify, assess and map (using GIS) river-adjacent municipal golf courses (or other public recreation facilities) that are underutilized and which would be logical candidates for decommissioning; assess their ecological value, wildlife habitat value especially for migratory birds, land ownership, land cost, and assign a prioritized cost-benefit ranking to each, against all other such areas.

Rather than having such lands converted into tract housing or apartment complexes, their value as potential large additions to the natural green river corridor should first be thoroughly assessed.



d.) Urban blight areas that are the best candidates for conversion to net new natural open space. Make the same ecological cost-benefit survey recommended above for existing undeveloped and unprotected open space.

e.) Brown field areas. Assess all river-adjacent industrial brown field areas such as superfund sites, which may be candidates for federal reclamation funding. Identify their potential ecological (and economic) value if restored with native plants and wildlife habitat, and calculate both purchase costs (if privately owned), reclamation costs, and native plant community/wildlife habitat restoration costs.

### 3.) Best practices for riparian trash management

The Jordan River has long been one of the most polluted of all rivers in America (until the 1950's raw sewage was dumped into the river under the belief that bacterial and viral pathogens would be neutralized by the saline water of the Great Salt Lake). Due to a complete lack of trash removal mechanisms either at the city, county or state levels, the quantities of physical trash objects floating on the river surface and embedded in its banks and river bottom is easily comparable to that of rivers in any deeply impoverished third-world country.

The iconic image of our city's only river is much the same as that of New Orleans after Katrina: a panorama of monumental shipwrecked garbage objects—refrigerators, televisions, telephone booths, bank safes, car and truck tires and wheels, engine blocks, transmissions, queen-sized mattresses, plastic bags full of the rotting flesh of butchered farm animals, 330 shopping carts in six years within a 10 mile stretch of river in Salt Lake City alone—and a torrent of floating trash in quantities easily as protean as those of any third-world barrio.

For a kayaker paddling in this Hades-like environment, a bag of relatively clean, regular household trash is a welcome relief.



*A typical trash island, Western Pacific Railroad crossing, Salt Lake City between N. and S. Temple, 2.5 miles from Utah State Capital building*



*Citizen cleanup crew dwarfed by typical trash island, Salt Lake City at 1200 South*



*Citizen volunteer cleanup crew tows 2,000- pound\*, water saturated queen size mattress out of Jordan River with pickup truck at 1700 South*

*\* (1 gallon = 231 cubic inches; queen sized mattress = 60" x 80" x 12" = 57,600/231 = 249 gallons of water x 8.35 lbs per gallon = 2,082 lbs )*



*Terminal trash island overgrown with vegetation and completely blocking the river, Legacy Nature Preserve, August 2007*



*Trash-fishing for shopping cart with 5-lb grappling hook, Jordan River pedestrian bridge, Salt Lake City at 800 South*



*Trash pickup load from one morning of work on a single city block long stretch of the Jordan River in downtown Salt Lake City—7 shopping carts under one single pedestrian bridge. Think about it: 330 shopping carts in 6 years, in one city alone...*



*River preservation activist Jeff Salt (at left) with river cleanup volunteers, South Salt Lake City, 2006*

It has been quite an education to this writer to witness hundreds of people turning out on a gorgeous morning of early summer to haul carpet, couches, washing machines, car trucks and tires out of slippery, sticky mud smelling like rotting body parts--and to learn that they like doing this.

But since that is true, why should not cities take a modicum of initiative to actually mobilize, coordinate and logistically support such citizen cleanup efforts on a regular basis?

**Best Trash Management Practice #1:** Each city should fund one or more paid staff positions for persons to serve as recruiters and mobilizers of a citizen volunteer labor force to sustain a regular program of trash removal at certain points along the river in each city, throughout the spring, summer and fall months.

**Best Trash Management Practice #2:** Employ homeless people already living along the river to remove (rather than leave) trash from the river banks and floating trash from the water--and then have them pay part of this cost back as a reasonable rental fee for comfortable and convenient housing in old rental properties situated along the river.

**Best Trash Management Practice #3:** Install trash receptacles for both regular and recyclable trash at every pedestrian bridge, boat dock, and other place where people regularly approach the river bank.

Case study: In 2009 Salt Lake City placed regular and recycle trash bins at one end of every pedestrian bridge on the Jordan River. The following year the reduction in floating trash on the river was dramatic, and disposal of such trash by compulsive Salt Lake City boaters became infinitely easier.

**Best Trash Management Practice #4:** Design and install trash collection weirs or nets at strategic locations along the river.

Daily observation over an 8 year period in a mile long stretch of river just upstream from this author's house shows that certain types of trash always collect in certain types of eddies, typically where a tree branch has descended into the river and forms a "strainer" that is extremely efficient at catching certain types of trash in vast quantities. There are beer can eddies, styrofoam eddies, cigarette butt eddies, etc. This empirical observation suggests that artificial trash weirs could be designed that would capture floating trash at locations convenient for removal (say, near boat docks or existing trash locations along the river) perhaps developed through a design competition hosted by one or more engineering departments at local colleges and universities, powered by a cash award.

**Best Trash Management Practice #5:** Recruit boaters who live on the river to serve as volunteer "river garbage rangers" who will regularly clean trash out of a particular stretch of river, disposing it into the system of regular and recycle waste bins conveniently located along the Jordan River Parkway at each pedestrian bridge and boat dock, as recommended in Best Trash Management Practice #3. This should be a comprehensive, systematic program managed by the River Restoration Volunteer Coordinators in each city.

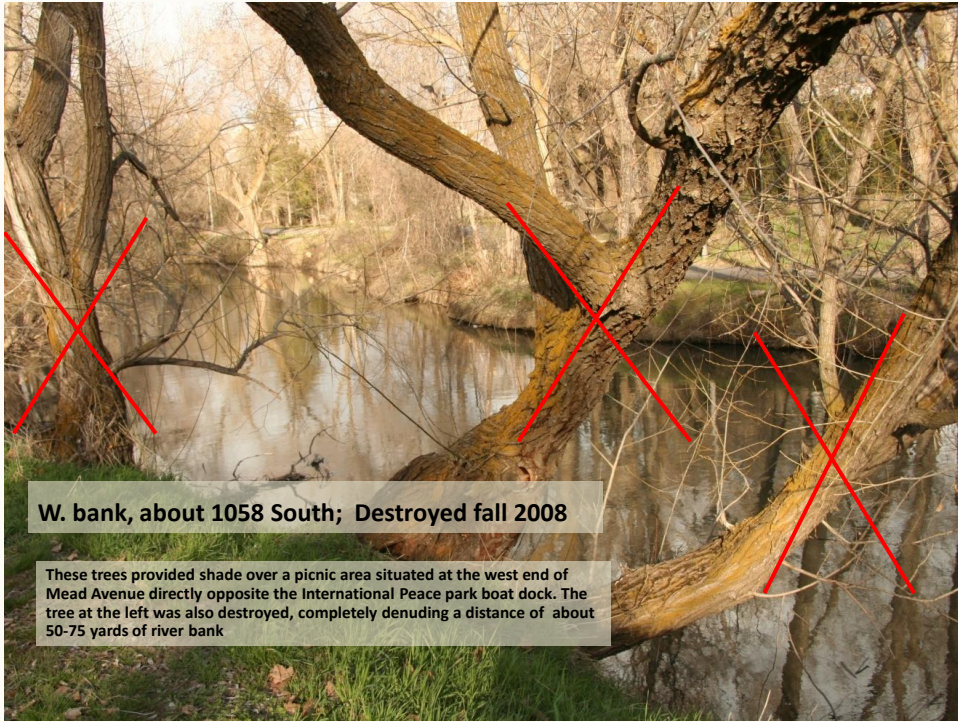
#### 4.) Best Urban Riparian Forest Management Practices.



Very simply, for many decades the Salt Lake County Flood Control department has been waging a genocidal total war against riparian forests, with streambank denudation. The following maps and photos illustrate the extent of the tree removal and streambank denudation in a stretch of river on Salt Lake City's west side

Because of excessive dredging, berming and streambank channelization, most Jordan River stream banks are both high (up to 15 feet high) very steep, unstable and subject to continuous downward soil "creep". As young trees naturally and continuously become established in this steep bank, and as they gradually become mature and therefore much larger and heavier, they begin to tilt downward, but they do so very slowly, often taking many decades to tilt so far that their lower branches. Indeed, the

process of tilt is so slow that the tree trunk often grows upward towards maximum sky light faster than it is tilting, creating an upward-curving profile:



**Because of individual small branches touching the river, and their lean out over the water, both of these mature crack willow tree trunks were removed in a massive Salt Lake County Flood Control streambank denudation project at 10th South, October 2008. It would have been decades before either tree trunk tilted enough to require removal of the whole tree for flood control purposes.**

Even when a tree branch, or whole tree, descends into and begins to block the river's flow, it is very doubtful that this poses any significant flood risk. As the river rises during a true flood, its power will easily break up and remove any such tree. Trees are strainers—not dams. And where they do dam water due to an accumulation of debris within them, the water will overtop that dam (and usually remove it) long before it rises 12 to 15 feet to overtop a dredge berm.

However, tree strainers do pose a substantial risk of capsizing, entanglement and drowning, to boaters, and should be removed when they fall into the river. All too often county flood control teams remove healthy, ecologically valuable trees that provide shade and cooling to river water, as well as abundant wildlife shelter, habitat and forage, when a single branch is touching the water. A better practice would be to remove only the branch, and this can usually be done fairly easily from a boat.

The following graphics will give some idea of the massively overdetermined nature of the Salt Lake County Flood Control departments urban forest decimation program.



*Typical Salt Lake County Flood Control streambank denudation project, Salt Lake City, October 2008. Access for large equipment typically requires the removal of whole groves of trees.*





*A GPS-based survey of sawn tree stumps and recent tree root cavities, by the Great Salt Lake Keeper and Jordan River Restoration Project organization staff, identified no less than 58 trees had been removed by Salt Lake Flood Control in a one city block long stretch of river between 1200 and 1300 South*



W. bank, 1050 South,  
Destroyed fall 2008

**BEFORE:**

The large, many-trunked tree provided shade both to the river and to a picnic bench on the West bank of the river almost directly opposite the International Peace Park boat dock, at which the canoe in the foreground is moored

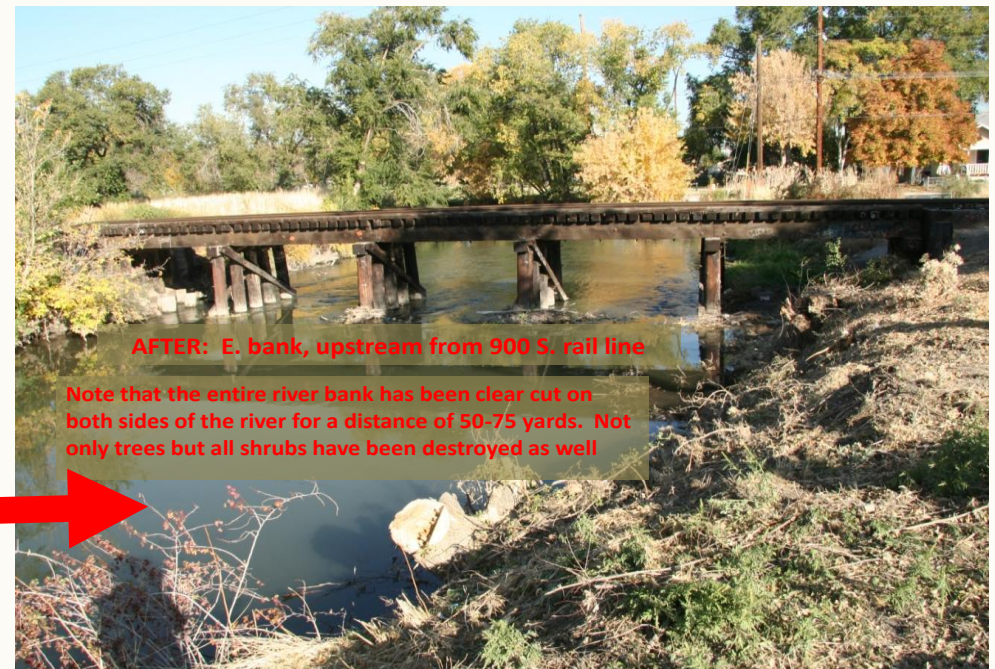


W. bank, 1050 South,  
Destroyed fall 2008

**After:**  
**Totally Denuded  
River Bank**



**BEFORE:** West bank, upstream from  
900 S Rail line - fall 2008



**AFTER:** E. bank, upstream from 900 S. rail line

Note that the entire river bank has been clear cut on both sides of the river for a distance of 50-75 yards. Not only trees but all shrubs have been destroyed as well

### Best Practices for riparian forest management:

- 1.) Except where indicated in a native plant or riparian forest improvement plan, no removal of whole trees, under any circumstances, simply because they have branches extending out over the river.
- 2.) Policy of no removal of whole trees or tree branches except when a tree or branch touches the river surface
- 3.) When individual branches touch the river surface, removal of that branch alone rather than the whole tree.
- 4.) Every removal of a whole tree that has fallen into the river to be accompanied by the planting, by Salt Lake County Flood Control and/or Tree Utah, of two or more
- 5.) Best practices for transient/homeless population management on the river corridor.

appropriate native trees, in accordance with the city's riparian forest management plan.

5.) Systematic inventory by each city of all Jordan River streambank trees, and development by each city (or by Salt Lake County), perhaps in partnership with Tree Utah, of a systematic riparian restoration masterplan for gradual, staged removal of non-native trees, and planting of new native tree species to replace the non-native forests.

6.) Where beaver populations are decimating stream bank trees, girdle native trees indicated for retention in the municipal urban riparian forest management plan, and/or trap, remove and relocate the beaver to other areas where they will be allowed to fell trees and build dams. Beavers naturally fell trees and build dams—but they will never be allowed to build dams within any city on the Jordan River!



***If we can spend millions to help war refugees in distant lands we can also afford to help the citizens of our own country who are economic refugees.***

The existence within the river corridor of a large and constantly growing population of homeless and transient persons, some of them mentally or physically handicapped, most of them economically disadvantaged—and many of them highly competent, skilled, capable and valuable potential contributors to our regional economy—is a substantial riparian management problem that is never discussed in polite circles and which continues to grow—quite unnecessarily—due to studious neglect.

Instead of demonizing, ostracizing and persecuting such people, they should rather be regarded as a human version of the migratory birds that stream through our communities, so greatly enriching them. The human enterprise within any democracy is, at its best, one that honors and celebrates every person, especially those free-

spirited people, the "floaters", as they sometimes call themselves, that travel our country, living on the margins of society and often providing a labor pool that can

move quickly to wherever it may be needed. Best practices for managing such populations should be developed by each city; possible best practices are:



***Temporary transient camps dot the river corridor, just as they have since before the arrival of European immigrants in Salt Lake Valley***

A.) Provision of subsidized housing in low income neighborhoods along the river corridor, where transients can live for free in return to regular daily labor in cleaning and restoring the river corridor--e.g., picking up trash, invasive plant removal everywhere, planting of native plants, maintenance of river-adjacent community gardens, and other forms of skilled and unskilled labor within restoration or riparian improvement project areas, etc. If people choose to live along the river they should take some responsibility--and pride--and perhaps even draw income, from helping to clean up and improve it. Partnership with local non-profit organizations such as the Utah Food Bank, Crossroads Urban Center, a special program of the Utah State Employment office, etc. could leverage an intrinsic labor pool of unemployed workers, at relatively low cost and perhaps with supervision by a cadre of volunteers, to accomplish great improvements, at very low labor costs, to the river corridor, while improving the economic status and quality

B.) Establishment of camp sites along the margins of the river corridor where homeless and transient persons can live comfortably in tents, at low cost, while working as temporary laborers as suggested in Best Practice (A).

C.) Video oral history programs in each city to capture the rich cultural diversity and compelling stories of those Americans and immigrants who are living bravely and often with great ingenuity, at the edge of survival, in an urban wilderness areas on the margins of our society.

**Page 9, Foundation for River Protection / Coordination of land use tools**

**Draft text:** the river's long-term health will be enhanced by encouraging or requiring cluster subdivisions that permanently protect open space and wildlife habitat by concentrating new homes on smaller lots on the least sensitive portions of the site.

**Comment/recommendation #4:** We strongly recommend against promotion of the "cluster subdivision" concept for this reason: it is antithetical to the mandate to protect ALL remaining open space within the Jordan River meander corridor. The "cluster subdivision" concept is based upon the assumption that cities will not in fact follow the maximum open space preservation mandate of the Blueprint. It assumes that the only currency with which open space preservation can be purchased, is open space itself. It assumes that all remaining undeveloped open space must be "subdivided" between development and preservation of open space—and the accompanying diagrams always suggest a wildly unequal division—that is, 80 to 90 percent developed with housing, retail or commercial office building and pavement, *This whole manner of thinking is in fact totally incompatible with the very idea of open space preservation.* Rather, it is a recipe for maximum liquidation of existing open space. Any such conceptual framing is a direct betrayal of the public will and preservation mandate of the entire *Blueprint Jordan River* planning effort.

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**Page 11, Protect Large Undisturbed Areas and Hydrologic Regime – How To**

**Draft text:** "Identify large, natural areas for protection along river corridor."

**Comment/recommendation #2:** Suggest use of the following quote and sidebar to highlight that the consensus of conservation biology scientists is that the ecological value of "core" natural areas is proportionately greater as habitat "patch" size increases. That is, patch size is disproportionately important to biodiversity and ecosystem integrity. This is because a certain critical mass of habitat is necessary to maintain genetically viable populations of any particular animal species, whereas habitat patches too small will not have sufficient diversity of genetic material in particular species to maintain either a viable population size or genetic diversity sufficient to provide adaptability to climate changes and countless other stresses. Thus as wildlife habitat "patch" size decreases at various points the potential for sufficient genetic diversity to maintain particular species falls below their minimum. Furthermore many ecosystem relationships depend upon the existence of a certain

minimum complement of different species all working together symbiotically, and as patch size decreases the symbiosis components sequentially fail.

Connectivity between geographically proximate smaller "patches" can partially, but not fully, compensate for their smaller individual size, by providing in the aggregate sufficient habitat for viable populations of various species—which explains why "connectivity", after size, is the next most important consideration in assessing biodiversity preservation potential.

Proposed sidebar: **Why Big is Better: Biodiversity Preservation Theory in a Nutshell**

The fact that migratory birds travel tens of thousands of miles, some of them flying the entire length of the North, Central and South American continents, illustrates a theory confirmed by scientific research in locations all over the world: intact, fully functional ecosystems can be as large as intercontinental in scale.

The need for wildlife populations to move freely across very large landscapes in order to maintain population sizes large enough to be sustainable has been studied, tested, proved and reproved throughout the past forty years. There is now a strong consensus among conservation biology scientists that the following five criteria, in descending order of importance, are the key measures of successful wildlife reserve system design. In all such formulations, reserve size is always at the top of the list. The World Conservation Strategy of the IUCN formulated the "rules" for reserve system design this way clear back in 1980:

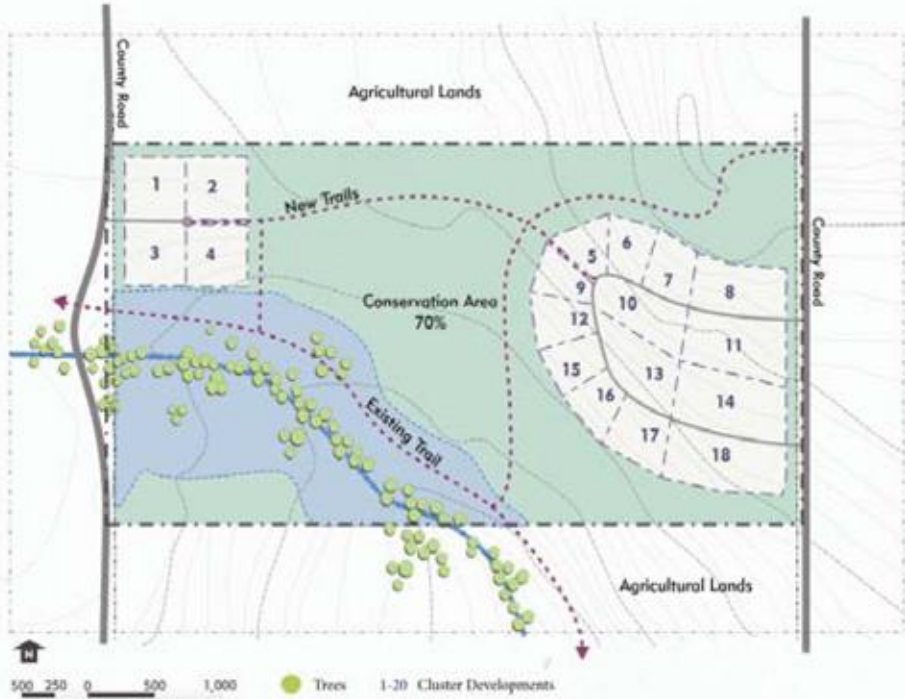
- A. Large reserves are better than small reserves.
- B. A single large reserve is better than a group of small ones of equivalent total area.
- C. Reserves close together are better than reserves far apart.
- D. Reserves clustered compactly are better than reserves in a line.
- E. Reserves connected by corridors are better than unconnected reserves.
- F. Round reserves are better than long, thin ones.

Quoted in: Foreman, Dave, et al, 2003, New Mexico Highlands Wildlands Network VISION, New Mexico Wilderness Alliance, Albuquerque, NM, pp 59-60.

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**Page 12, Land Use: Encourage Clustered and Compact Development Patterns**

**Draft text:** "Why important... Clustering development preserves environmentally-sensitive land and open space by concentrating new development on less sensitive parts of a property. It also reduces sprawl by minimizing land consumed by roads, infrastructure, and structures.."



**Comment/recommendation #3:** We oppose this whole concept for reasons given in comment #1. We must find a better way. The illustration above shows why: it simply assumes that every block of open space within the flood plain of the Jordan River will be consumed by housing; the only question is, in what ratio of housing to reduced open space. This is totally unacceptable because it categorically denies the mandate of the Blueprint planning effort to protect all remaining open space in the corridor.

This really is a continuation into housing of the "river center" ideology, in which the majority of flood plain/meander corridor land must always be consumed by development, leaving only a "strip" or "G-string buffer"; an exquisitely thin sliver of land between the subdivision and the river. Since the Blueprint's own prescription for most of the river is for no more than a 150 foot setback, this strip will necessarily be but a fraction of any remaining open space, such as that on the upper Jordan River in the vicinity of Saratoga Springs and Lehi, large enough to accommodate a housing

[Jordan River Restoration Project](#)

Comments on Draft Jordan River Commission, "Best Practices for Riverfront Communities"

subdivision. Housing subdivisions are by their nature vastly much larger than 150 feet wide. This concept is simple subterfuge: it is a "blueprint" for G-string buffer-strips serving as green-wash window dressing for massive housing developments. There is no hiding this reality. So-called "compact" housing subdivisions are massive subdivisions within the river flood plain. The consequences of rubber-stamping such development will be endless cycles of flooded housing and FEMA bailouts, just exactly as we saw with Hurricane Katrina. **We can do better than this!**

**Pages 13- 14, Land Use: Green Site Design...Ensure Development is compatible with river environment**

**Draft text:** "Why important... One of the best ways to protect the Jordan River is to integrate it into the fabric and lifestyle of the community. The more a community interacts positively with a river the more motivated and vocal its residents will become in defending the river from threats. The river thus must not only be protected from physical degradation from development but against development that is incompatible in character with the river's natural environment and context..."

**Comment/recommendation #4:** We agree with all of the recommendations in these two sections but are deeply concerned that the entire Best Practice document essentially seeks to substitute what "green washing"—e.g., relatively superficial after-the-fact-of-development facelifting in place of preservation of open space, creation of net new open space, and rehabilitation/restoration of urban blight areas. That is, its thrust is to encourage cities and developers to substitute relatively superficial "green practices" for true wildlife habitat preservation and restoration.

Therefore we recommend the addition of one statement at the beginning of one or both of these sections:

"By far the best way to enhance the economic and recreational value of the river corridor is to preserve all existing open space, and restore it to full ecological vitality. Green site design is not a substitute for preservation and restoration of ecosystem integrity. However, where housing or commercial development has already occurred...."

**Page 15, Land Use: Ensure Development is compatible with river environment**

**Draft text:** "CONSIDERATIONS... Redevelopment of incompatible uses"

**Page 30 of 37**

**Comment/recommendation #5:** See comment #1 regarding the inventory of opportunities for rehabilitation/restoration of urban blight and brown field areas.

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### Page 17, Environment

**Draft text: "1. Increase habitat patch areas and complexity (horizontal and vertical structure)** The goal of this approach is to create large areas of linked quality habitat to protect biodiversity. Larger habitat patches have the potential to support a greater variety and number of species."

**Comment/recommendation #6:** We strongly support the recognition given in this section of the importance of preserving large patches of wildlife habitat—and connectivity between them. This would be another place to use the quote and citation given in comment #2, regarding the relationship between habitat patch size, connectivity and biodiversity.

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### Page 18, Environment

**Draft text: "2. Increase habitat connectivity (lateral and length) between patches -- ....** Thus restoration projects benefit from expertise in species habitat requirements and movement capabilities. Quality of patch measured by size, structural complexity and succession potential could be linked to Bronze 50-100', Silver 100-200', Gold 200-300' widths, and would be expected to attract various bird species."

**Comment/recommendation #7:** We believe that the "Olympics medal" system of arbitrary setback distances sends the wrong essential message about preservation of lands within the flood plain. This system and all references should be removed and replaced with the concept of protecting all remaining undeveloped lands within the meander corridor (500 year flood plain), to whatever extent possible, along every foot and mile of the river corridor from end to end. This endeavor should not be arbitrary, but very deliberate. Nature is not arbitrary, and neither should we be, in protecting it.

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### Page 21, Environment: Manage Invasive Species

**Draft text:** "Non-native and nuisance wildlife that thrive within the river corridor include raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*) and the domestic cat (*Felis catus*), the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*) and the rock dove (*Columba livia*). Fish species include the common carp (*Cyprinus carpio*), rainbow trout (*Onchorhynchus mykiss*) and channel catfish (*Ictalurus punctatus*) (National Audubon Society 2000)."

**Comment/recommendation #8:** We recommend adding the beaver to this list, in a separate category of "species requiring special controls", for the following reasons: Although beaver are native and have a very important role to play in a riparian and wetlands ecosystem, it is also true that unless and until beaver are allowed to do what they normally would—fell trees along the stream bank and use their branches to construct dams across the river—and until some beaver predator is introduced into the ecosystem—their ever growing populations will have a deleterious effect on riparian forests. Already this is true. A great number of streambank trees are being girdled and thereby killed by beaver. We think the best practice would be

- a.) create areas where beaver can follow their dam-building instincts without any need for intervention;
- b.) girdle mature indigenous and all ecologically desirable trees along the river banks to prevent beaver from killing them;
- c.) where beaver populations are higher than is optimal for ecosystem recovery, either introduce predators, allow trapping, or trap and remove them to other areas of Utah where beavers are needed to reestablish their populations.



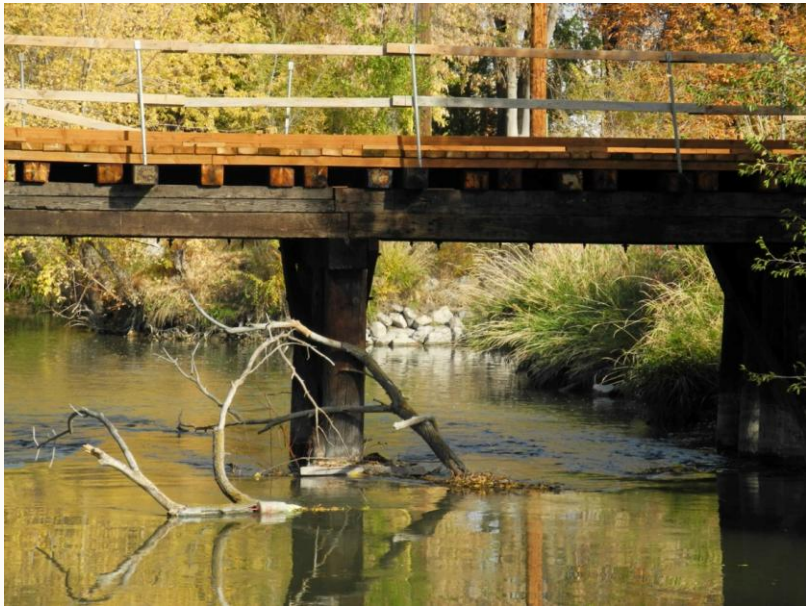


**Page 26, Recreation: Provide River Access Where Appropriate**

**Draft text:** "Bridges are common along the Jordan River Parkway and are vital to providing access to the corridor from adjacent communities.... Bridges are needed and desired for users of the Jordan River Trail to have easy access to desired areas without restricting access to the water trail and impacting riparian habitat.

"How to: ... Locate bridges frequently enough to provide access to the corridor from adjacent communities but not so frequently as to impact riparian habitat and use by water trail users.

**Comment/recommendation #9:** This narrative seems to suggest that more and still more pedestrian bridges should be inserted along the river whenever residents living nearby may wish to have a more convenient crossing point. It should be added that all bridges, without exception, have a deleterious effect on normal river function, which is to continuously wander back and forth across the flood plain. Why such "wandering" is both normal and desirable should be explained in a sidebar to this narrative, with further explanation that bridge abutments, by narrowing and hardening the river banks, constrain and detract from "natural" river function. Therefore a statement should be added to the effect that wherever possible, bridge removal should be considered, and that every effort should be made not to add still more bridges anywhere along the river.



**[Above] Bridge removal candidate:** The Union Pacific rail line at 900 South has been decommissioned and Salt Lake City is converting its road bed into a bike trail. At the old railroad bridge the bike trail can be rerouted to an existing parallel bike trail for a short distance, and can then cross the river at an existing pedestrian bridge a little downstream. Note that bridges can catch debris that presents a major hazard to boaters.

Proposed sidebar:

"In-channel structures such as dams, bridges, and culverts interrupt the natural stream shape by creating unnatural reservoirs or passageways. For instance, culverts are commonly too small, set improperly, and do not emulate the natural channel pattern. Stream instability is the result as demonstrated by flooding upstream and erosion downstream of these structures."

--from, Minnesota DNR Resource Sheet 1: Streambank Erosion and Restoration at:

[http://files.dnr.state.mn.us/publications/waters/understanding\\_our\\_streams\\_and\\_rivers\\_resource\\_sheet\\_1.pdf](http://files.dnr.state.mn.us/publications/waters/understanding_our_streams_and_rivers_resource_sheet_1.pdf)



***Even a pedestrian bridge like this one at 900 South--the smallest kind found on the Jordan River--has massively fortified hard-walled abutments which pinch the river and freeze it into position. Upstream from this river-channel choke point there will be erosion, and downstream, deposition. The fewer bridges the better. Best practice is to identify bridges that are not really needed, and remove them.***



Bridge obsolescence case study: 900 S. Railroad Bridge. The railroad has been removed and converted into a bike path; where it crosses a native plant restoration site the trail has been rerouted making the old railroad bridge redundant to two nearby pedestrian bridges. The RR bridge is no longer needed and should be removed.

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**Page 26, Recreation: Provide River Access Where Appropriate**

**Draft text:** "How to: ... Install ramps, which have proven to be the best solution to take outs and put ins..."

**Comment/recommendation #10:** Add: All boat launch facilities should be placed within river eddies of sufficient size to accommodate several boats; this will protect both the ramps or docks, and the boaters, from the power of the river current.

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**Page 27, Recreation: Locate Trails to Protect River and Habitat**

**Draft text: How to:** "Avoid placing the trail close to the river on an outside bend"

**Comment/recommendation #11:** In a great many places the Jordan River Parkway Trail is much too close to the river bank, making it highly vulnerable to erosion and/or requiring massive fortification of the river bank to protect the trail from erosion. Furthermore, the trail, perched atop dikes and dredge berms at water's edge, serves to lock the river into its channel and stands as a massive (and very expensive) barrier to future layback of the river bank to prevent erosion—or to widening of the natural corridor of the river in restoration projects where there is funding to expand the envelope of river-adjacent wetlands—but the trail and its supporting berm wall off any such adjacent wetlands from the river.

**Recommendation:** Add, "Wherever the Jordan River Parkway trail is vulnerable to erosion because it is too close to the river bank, and wherever it may serve as a barrier to wildlife or to water moving between the river itself and adjacent wetlands or wildlife habitat, city planners should be alert for opportunities to move the trail further back away from the river."



*Photo credit: from a Salt Lake County Flood Control slide show*

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**Page 28, Recreation: Integrate Active Recreation to Minimize impacts on River Function & Wildlife**

**Draft text: How to: Retrofitting existing recreation facilities** Reduce manicured turf to a functional minimum and plant native cover to reconnect remnant habitat patches

**Comment/recommendation #10:** Add – "In all existing parks, golf courses and other river-adjacent recreation facilities, lay back or reposition dredge berms, add native plant buffer zones or if possible, river-adjacent swales or wetlands in swaths as wide as possible, to provide enhanced wildlife habitat and connectivity along the river banks. Existing golf courses can be redesigned to substantially expand the natural habitat envelope back away from river's edge."

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**Page 29, Recreation: Enhance East-West Trail Connections**

**Draft text: How to:** Create a gateway element at the intersection of east-west community trails and the Jordan River Trail

**Comment/recommendation #12:** Add -- "Wherever possible cities should build bike lanes and paths that connect light rail stations to Jordan River trailheads."

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**Page 37, Utilities: Minimize Impacts of Utility Corridors**

**Draft text: How to -- Management, maintenance and mitigation of existing facilities.** Utilize utility buffer zone to improve natural habitat areas.

**Comment/recommendation #13:** A north-south power line corridor up to 200 feet wide runs most of the length of Salt Lake Valley, and is positioned closely parallel to the course of the Jordan River, criss-crossing the river multiple times. Much of this utility corridor's length is fenced and it will never be further built out. In effect this is a potentially valuable open space resource of considerable aggregate size, and if it were managed to maximize wildlife habitat values, might become a useful wildlife habitat adjunct to the river corridor itself.

Add to "How To:" "Develop a comprehensive wildlife management plan for lands within the north-south powerline corridor running adjacent to the Jordan River, and maximize connectivity, forage and shelter for wildlife along this entire corridor through restoration of native plants."

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**Page 39, Riparian Protection Ordinance**

**Draft text: 1. Purpose statement.**

**Comment/recommendation #14:** Add this to the list of Purposes of the riparian protection ordinance:

6. Minimize costs of flood control through zoning by protecting as much as possible of the effective river meander corridor from build-out.