ADVANCE FORT LAUDERALE COMPREHENSIVE PLAN UPDATE -PUBLIC COMMENTS SUMMARY

Downtown Fort Lauderdale Civic Association Work Session- April 25, 2019

- The International Panel on Climate Change (IPCC) was created by the United Nations to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks. Given the downtown's vulnerability to rising sea levels, these assessments of the IPCC should be studied and guidelines should be referenced accordingly.
- This is a critical measurement that needs to be part of the code. Not having enough open space will lead to more flooding as well as impact the infrastructure.

Comments received at September 9, 2019 Open House

- Beach erosion plan
- Mandatory [ban on] straws and other detrimental materials on the beach that could end up in the water
- Mass transit solution
- What about our plan to get business back up and running after a hurricane? Repair, code enforcement. How do we put a temporary rule in place to get things running.
- A really nice job. Thank you to all the invisible, hard working staff who do not get thanks for the work and efforts you provide our city.

Email Communication

RE: Draft Climate Change Element
DATE: 11/18/2018
FROM: Jennifer Jurado

"I offer the following general and specific comments for your consideration. Overall, there is reference to coordination within region, with cities, agencies, etc. but I do not see reference to county. Just seems a beneficial area of continued collaboration that might warrant similar reference. There seems to be an inconsistency in formatting. Sometimes the policy begins with a statement that is written as a summary, other times its directive noting the city shall do x,y,z. I don't know if this was intentional.

Cover - typo in 4th bullet

Goal 1. Objective 1.1

Suggest deletion of "of" to read "Increase renewable energy production and distribution"

Policy 1.1.3. Should be "an" not "and. Is review enough? What about track and report?

Policy 1.1.5. Maybe expand on reference resiliency as this is the first time used. Resilience to climate impacts? Severe weather? Energy resilience, since this is the GHG section? Not sure.

Evaluation measure 1.17 - delete "such as"

Evaluation measure 1.18 - reference to heat island effect is not clear. Expand canopy to help reduce the heat island effect? Otherwise its sounds like there is a new goal to reduce the heat island effect that might require its own measure, such as reporting on thermal trends.

What about including a policy on expanding EV infrastructure within community? Either under this objective or the one that follows. Perhaps both. While referenced in objective 1.3, it seems there is a need to reinforce investment by City rather than by business and residences. Maybe I missed it?

Objective 1.2 Suggest that "Climate Change" need not be capitalized.

Policy 1.3.31st line - "or" should be "for" .2nd line - replace "energy efficient with "energy efficiencies". Technology or infrastructure?

Policy 2.2.1e Seems appropriate to reference coordination with county as county maintains a community-wide flood map for future conditions which is being updated for sea level rise and

ground water table change. There is an inability to calculate flood levels from the SLR projection, hence the modeling, and the city is a cost share partner in this study. So reference to this collaborative study and the future conditions map series, which will include the updated flood map, seems like an appropriate reference.
policy 2.2.1f replace "resistance" with "resilience"?
Policy 2.2.2 Replace "location" with "siting"
evaluation measure 2.2.3a Rather than "have" a updated, maybe say "produce" or "adopt", "provide, "present", "complete"
Objective 1.3 in 3rd line, suggest replacing "climate change" with "climate extremes" as text already refers to climate variability and change soundsredundant?
Policy 2.3.2 Is intent to evaluate the potential for a modified rate structure based on asset vulnerability. Maybe clarify?
Policy 2.3.3 Suggest the following change in 3 and 4th line "approach that promotes best management practices" instead of "approach through the use of current BMPs"
Objective 2.4 I suggest going a bit further than policy 2.4.1 with a statement about efforts to ensure that adaptation does not come at the expense of natural environment. That adaptation strategies are reviewed with a sensitivity for dependent ecosystems with emphasis placed on efforts that preserve and enhance the adaptive capacity of these ecosystems.
policy 2.4.2 Suggest that "exploit" be replaced with "promote"
Objective 3.1.2 Suggest spelling out Southeast Florida Regional Climate Change Compact"

RE: Draft Climate Change
DATE: 11/19/2018
FROM: Alec Bogdanoff
"- "climate change" is inconsistently capitalized in the document.
- Would be good to have a policy similar to CC1.1.2 for sea level rise as well - more spelled out than 2.2.1.
-- POLICY CC 1.1.2: The City of Fort Lauderdale shall consider greenhouse gas emissions when making decisions related to procurement, capital improvements, operations, programs, events, long-term planning, land-use, and City operations. --- could be added to 2.2.2
- Financing should be an important topic. The City could be a leader in creative financing for resilience and sustainability. Touch on it for PACE.
- POLICY CC 1.2.4 --- Would be good to include more than just bicycles and pedestrians. We just put added electric scooters which are likely around for a while or other technologies down the pike.
- What about electric car charging stations?
- POLICY CC 2.1.1 --- incorporate socioeconomics into the assessment?
- Love 2.2.3a - it's something I have been working on independently"

RE: Draft Comp Plan- Transportation and Mobility
DATE: 4/17/2019
FROM: Peter Partington
"Here's a few comments on the above section.
TM 1.1. There should be a policy that encourages the City to obtain and share data with the emerging transportation technology companies such as transportation network and scooter and bike companies with a view to managing and planning for changing mobilities. The date will show emerging transportation demands and the City can plan facilities and encourage alternatives to auto travel and its parking requirements.
TM 1.1.1d. I'm not sure what is meant by a 'level of stressevaluation'.

TM 1.1.3 I'm not sure of the intent of this policy. If it's to discourage use of the ROW for temporary construction related activities it's fine. However if it's intended to give grounds to remove some of the road closures in neighborhoods it's controversial. The permanent closures in the City are popular with residents and if they wanted any removed they would soon ask.
TM 1.1.4b Add a reference to new and emerging transportation technologies [ie anything that may not be foreseen now but develops during the currency of this Plan].
TM 1.1.4c This appears a little in conflict with 1.1.3
TM 1.1.4d See comment under 4b.
TM 1.1.7 'evaluate...a multimodal LOS by 2026'. This is very unambitious and equivocal. The LOS standards based on traffic volumes are no longer appropriate in many situations at this time [especially in the downtown]. It is vital to develop new ways of measuring transportation supply.
TM 1.2.6 I know the intent of this is limited but placing the safety needs of motorists at the same level as pedestrians and cyclists is inappropriate. There is a safety crisis for peds, cyclists etc now. Their needs have to be prioritized. Unfortunately many FDOT standards [although improving] prioritize motorists.
TM 1.3.4 A little confusingly worded.
TM 1.4. I think this section in general should be broadened to included scooters and other emerging transportation alternatives. Already scooter safety is a large problem.
TM 1.5. I think there should be mention of encouragement for the Water Taxi service. Also it would be great if bikes and scooters were allowed on the water transportation [like buses].
TM 1.6.2. I think the City should oppose all roadway widening except for intersection improvements. Cyclists etc do not want to be in the 'roadway'. Space should however be provided with the ROW. As someone who, years ago, encouraged developers etc to provide turn lanes and enlarge driveway radii I now see the error of my ways!
TM 1.6.3. Take out reference to FDOT's standards. FDOT will apply these anyway to their ROW's and the City should not be referencing them on all other ROW's.
TM 1.6.3d. I'm not sure why this is in the Transportation Element.
TM 1.6.3f. Add ...'increased storm intensity.'
TM 1.6.4. 'Other transportation mechanisms' is too vague. See previous comments on emerging technologies.
TM 1.6.5. I think that the City is required to participate in [enforce?] BC's transportation concurrency management system. However this emphasizes the need for a new multi modal standard. I would like your consultant to assure you that the listed LOS standards are currently being met. I doubt this is the case for at least Broward Bl and some of the Eastern Core. I feel strongly that LOS D is appropriate for 'all other roads'. This is especially the case for residential roads. My reading over the years has informed me that the context sensitive [environmentally acceptable] traffic volume on a residential road is no more than 2000 vpd. There are, unfortunately, a number of 'residential collectors' that exceed this number. Perhaps a two tier standard that addresses 'residential collectors' and residential roads can be developed. It is unacceptable to continue to accept that [say] a 24 ft wide road with residential properties can be be planned to accept 10,000 vpd. [pulled this number out of my head from memory].
TM 1.7.5d. Explicit inclusion of the emerging transportation technologies such as scooters is appropriate here.
TM 1.7 GENERAL. I think mention of autonomous vehicles is now needed.
Also I think a little more on Brightline. I know that they are wanting to develop a station that links to FLL. That should be encouraged together with port transit connections.
TM 1.8 GENERAL. I believe the time has come to restrict the number of parking spaces that are allowed for developments in the downtown. I know that developers do not have to provide any spaces but they almost all provide the spaces required of suburban developers. In a multi modal city you can no longer expect to park exactly at your destination address. There is language in the draft that hints at this but it should be stronger. It is the most effective immediate action that

can be taken to swing the balance away from an auto dominated downtown such as we have now.
TM 1.10.8c This should be stronger. I believe the bypass is more than a study now. [Some commitments have been made?].
TM 2.1. Take out reference to LOS. Let's make this objective about maintaining the physical assets we have, not maintaining the supply of roads.
TM 2.2.4 Participation with the various bodies is about all potential transportation improvements for the City: not just 'traffic operations'.
TM 3.2.1 Has to be in the draft I suppose, but perhaps carve outs of certain areas can be negotiated based on concurrency being inimical to broader plans. [Note need for multi modal LOS again!].

RE: ITF Questions on Comprehensive Plan Element
DATE: 5/20/2019
FROM: Fred Stresau
"Copied below from your April 1 presentation of the Comp Plan to the ITF is the evaluation measure for the City to provide 5-acres of park and open space per 1000 residents. At the last ITF meeting in May, which I missed, there was considerable discussion on "where the 5 acre measurement came from" and secondly, much discussion on the finite definition of "Open Space". Both questions were assigned to Joe to research for our next meeting and perhaps you may already discussed the answers but if not I am pursuing both those two questions and a third which you may not be able to answer and that is where the funds from the 2006 Parks Impact Fee – Ordinance # C-06-14 have been spent. An you provide specific comments the definitions as regarding the Planning staffs interpretation of "Open Space"."

RE: Comprehensive Plan Update-April 1, 2019
DATE: 5/21/2019
FROM: Fred Stresau
In your presentation of the Parks Element you referred to the Parks and Rec Master Plan. What is the history of that document? Did it receive public input? Meetings or otherwise. Did P & R present it to the Commission? if so when? Did the CC approve the Master Plan and if so, the Commission by their approval, reviewed the 5 acre/1000 resident requirement? Lastly, other topic…Does the Beach count for the Open Space acreage? Did the staff consider any of the inland waterways as part of or contributing to the O S calculations. Most obvious would be the area of water west of the Seven Isles area along the north side of Las Olas.

RE: IT Questions on Comprehensive Plan Update
DATE: 5/27/2019
FROM: Fred Stresau
"I've read the responses from Gina Rivera's email of May 21st below and would like to pursue clarification of exactly what is the official position of the City regarding the Parks and Recreation Element of the Comprehensive Plan prior to next week's June 3rd meeting of the ITF. To be fair, I have looked at the minutes of the Parks and Recreation Board meeting of May 25, 2016 and subsequent meetings and have no luck pulling up and listen to exactly what was discussed at and thus my following question(s). With regard to my initial question regarding the History and secondly, did the Commission approve the Master Plan, Gina's response is not exactly true.
History: the CC did not vote on accepting the Systems Master Plan on September 7th..see my comments below.
Did the CC approve the Master Plan and did that plan include the 5 acre/1000 residents requirement: The answer to the first part is NO. Secondly, Ms. Rivera did not answer the second

part of my question (5 acre/1000) but based on what you have told us, the existing System Master Plan utilizes the 3 acre/1000 resident number.

Does the Beach count for the Open Space acreage? Did the staff consider any of the inland waterways as part of or contributing to the O S calculations: Didn't do my homework or I would have known the answers.

Did it receive public input? In reviewing the staff responses about public input/meetings from Ms. Rivera's email of May 21st below, it appears that the ITF is a bit of a "Johnny- come-lately" to be asked to comment on the Parks and Recreation System Master Plan but I believe that the committee has other responsibilities.

History recap: At the end of the joint luncheon tape (1:33) with the City Commission, the consultants and the Parks and Recreation Board on September 7th of 2016 the Commission – Jack Siler ask "what the Commission was to do with the Master Plan they had spent more than an hour and a half reviewing and understand that at that point, Dean Trantallis had already left the meeting. The CM's response was, "…pretty much all that we do with master plans is accept them", and thus I do not believe that any vote was taken on approving the System Master Plan. Also, there was no apparent discussion that I could discern on what the plan provided for a Level of Service but according to comments you have made recently to the ITF, the LOS is 3 acres/1000 residents. Please confirm that I have the figures correct for the LOS –the System Master Plan as reviewed and accepted by the City Commission in September of 2016 requires 3 acres/1000 residents, and secondly the current Planning Staff is recommending a 5 acres/1000 of LOS for the revised Comprehensive Plan Element the ITF reviewed in April and May of 2019. (See below).The physical and financial impact is over whelming in the years after 2025.

In your presentation to the ITF at our April 4th meeting, at 43:20 – 43:40 on the video, you made the following comment(s) regarding the Level of Service of the Parks Master Plan.

".. the revised Parks Master Plan as presented to the ITF last month recommends maintaining our current LOS at a bit over 5 acres/1000 people but the current existing Plan requires 3 acres/1000 people. I thought it good to note that that the Broward County Land Use Plan requires 3 acres/1000 residents."

I am particularly focused in the detailed wording of the LOS for the following reason.

Ordinance C-06-14, Parks Impact Fees - amongst other requirements states in Policy 1.2.2 seen below.

POLICY 1.2.2: Prior to site plan approval, the City of Fort Lauderdale shall ensure that Parks and Recreation Facilities necessary to meet the level of service standards established within the City of Fort Lauderdale's Comprehensive Plan

It appears that as long as the City expands the inventory of Parks and Open Space per the Planning Departments recommendation - EVALUATION MEASURE PR 1.1.1: (updated)- to meet the 5 acres/1000 residents everything will be hunky-dory regarding the City's issuance of future site plan approvals, key wording …as long as the City ensures that Parks and Open Space can meet the level of service established by the Comp Plan. That is precisely why the ITF and thus the City needs to carefully define the difference between land that falls under "parks" and that land which might qualify as "Open Space." At the ITF's last meeting Joe was asked to provide a definition of a Park and secondly that of Open space. What he provided is shown below.

what is the definition of a park versus open space? A park is an area of land, usually in a largely natural state, for the enjoyment of the public, having facilities for rest and recreation. Open space is land that is undeveloped that has no buildings and is accessible to the public. I have no objection to Joe's definition of a Park but based on committee members differing comments at the last meeting about the definition of Open Space, but I believe that we should go back to the

description in the System Master Plan. The is apparently a lot more land that meets this definition than the Parks Department lists under Table #3 – Urban Open Space and if the city is to meet the larger LOS then the Department needs to consider all open space.

Urban Open Space

Description: Areas of developed City property of a minimum of 0.1 acre. These areas have varied uses and purposes. They could be enhancements of the immediate surrounding streetscapes or neighborhoods, entranceway dedicated by the developer for parkland, water tower or other utility sites, oversized rights-of-way or medians. Typical development may include turf, trees, shrubs, irrigation, benches, trash receptacles, picnic tables, vehicular barriers, paved parking or walkways, signage and lighting. A 1/4-mile service radius is typical. Table 3 "

RE: Comprehensive Plan Update-April 1, 2019
DATE: 5/29/2019
FROM: Fred Stresau

"Something that has been bugging me all weekend long and that question regards the Parks and Recreation Element. (page 16) The Evaluation Measure PR 1.1.1. below states that the City will provide a 5 acre LOS / 1000 residents. WHERE did the acreage 5 number originate? It seems like that will be the object of any discussion at the Monday meeting where the LOS after 2015 falls below the acreage of existing parks."

RE: Comprehensive Plan Comments
DATE: 6/03/2019
FROM: Peter Partington

Community Investment. The Comp Plan should include the recommendations the ITF made to the Commission under cover of a memo dated August 28, 2018. Specifically the 4 recommendations under [1] Water and Sewer, [2] Stormwater, [3] Roads, Sidewalks and Seawalls and [4] Impact Fees. #3 is especially important and recommends the support of the CIP to the financial extent of 7-10% of the General Fund Operating Budget.

- Infrastructure Concurrency Management, Water [objective C1 2.1 and SWS 2.1] The draft plan states that the existing LOS is measured by the number of gallons/day based on average flows experienced and number of equivalent residential units [ERU] and that the LOS shall be 197 gallons per capita per day, with a goal of 170 GCPD through 2028. A reduced consumption rate is desirable and the 170 GCPD goal is not ambitious enough. The policies for conservation should be more specific toward that end.

- Wastewater Service Provision and Capacity [Objectives SWS 1.1 and 1.2]. The LOS should be based on the maximum 3 month average daily flow. I question the use of the FDEP capacity of 56.6 MGD. At this time the BCEP capacity of 48 MGD is more appropriate. The FDEP capacity will require the construction of an additional injection well.

- Infrastructure Concurrency Management, [Stormwater]. [objective C1 2.1 and SWS 6.1] There is reference to LOS based on the City's Watershed Asset Management Plan [WAMP]. I am not sure what this is or how it relates, if at all, to the SFWMD standards. Can this be clarified especially to ensure there is nothing in conflict? There are policies to raise road and building floor elevations to meet certain storm occurrence events. Climate change means that storms will become more severe and the occurrence standards are likely to become ever more difficult to implement. The City cannot just keep raising things out of the flooding. New development drainage standards

have a role to play. The Comp Plan proposes the retention of the first inch of storm water for developments. This standard must be more ambitious i.e. a greater amount of water retained on site. This will lead to increased pervious areas. There will be a benefit to overall drainage and increased open space. This suggestion falls also under the heading of improving resiliency by increasing pervious retention areas.

- Parks and Recreation Element. Park LOS [PR 1.1.1] This was discussed at some length based on Fred Stresau's letter on the May 6 Agenda. I am supportive of changing the current goal for Parks [ie public parks under public control] from 3 acres per 1000 residents to 5 acres. I recognize that the projected population increase will make this difficult to achieve but a Comprehensive Plan should be ambitious and parks are an essential element of all great cities.

Infrastructure Concurrency Management [Transportation, Objectives C1 2.1 and TM 1.6]. All LOS used here should be multi modal. Using traffic capacity [vpd] LOS is no longer acceptable. Research is needed on appropriate multimodal LOS standards for use in the Comp Plan. I am opposed to the blanket use of traffic LOS 'D' for all local roads. An acceptable multi modal LOS should be established for each category of local road [eg residential collectors, residential roads and roads serving commercial uses] based on their adjoining land uses. More traffic is acceptable on local roads in commercial areas than local roads through residential areas.

RE: Open House for the Downtown Master Plan review- June 5,2019
DATE: 6/23/2019
FROM: Fred Stresau

"I attended as an interested citizen but also as a very involved member of the Infrastructure Task Force. Ironically, the ITF has met the last 3 months with your staff to discuss Elements of the Comprehensive Plan and specifically addressing the Parks and Recreation Element of the CIP. The focus of our meetings was to determine the definition of Open Space as it relates to the Loss of Service as the population of the City increases from today at 187,000 to some 235,000 in 2045. At some time in 2025 the LOS evens out and then falls below the number that the staff is recommending at 5/1000 residents and that triggers the section of the Parks Impact fee ordinance that restricts the issuance of any further site plan approvals from DSD. This LOS also requires the CM to explain the problem to the Commission an and resolve the issue with recommendations as to how to immediately the solve the LOS. You had commented in our meeting that it might be possible for developers to contribute to the required open space and it is to that thought that has driven the last comment on the illustrated board below for the need to maximize the private contribution as much as possible. From my comments to the ITF earlier this month, the city can ill afford to provide all of the projected open space required by the Parks Element and must look to new and innovative ways for private developers to contribute to that cause. This is a foreign idea for most developers who are charged to develop their parcels to the max, driven not by public service but by greed. The city cannot expect any private contributions in terms of Open Space-plazas, wider sidewalks or fountains we admire in many urban cities and the 10% suggested by staff is simply a beginning but not sufficient to produce what I would consider great design possibilities. The DSD suggested 10% area for a city block site can be wasted away in small strips and isolated areas with little or no visual impact. Any new ordinance must require a larger percentage must also include verbiage that would require the DSD to evaluate the contribution as providing quality design. I would hope my comments and perhaps some images of other city Open Spaces might help make your suggestion a reality."

RE: Comprehensive Plan Comments
DATE: 6/19/2019
FROM: Peter Partington

The Commission decided at yesterday's Conference Meeting that it did not want the ITF to provide input/recomendations to the draft Comprehensive Plan. I would like to provide further comments as an individual city resident. My comments which were given to the ITF members at their last meeting [which I could not attend] follow at the end of this email. The last ITF meeting discussed the idea of transportation multi modal capacity and LOS. Questions were raised on the viability of this approach. The following link take you to a comprehensive transportation review policy ofthe Transportation Department of the District of Columbia. It illustrates the type of approach which should be pursued to address the various transportation modes which will be needed to make the City function better in the future. It is based on 'person trips' as opposed to 'vehicle trips'. https://nacto.org/wp-content/uploads/2015/04/comprehensive_transportation_review_ddot.pdf"

RE: ITF Communication to Commission regarding P &Z Board recommendation
DATE: 6/23/2019
FROM: Fred Stresau

"I watched the Commission's Conference meeting's review earlier this past week of the ITF's Communication to " contribute comments on the Comprehensive Plan to the Planning and Zoning Board" and was a bit taken back by the uninformed responses made by the Commission, Mayor, the CM and most assuredly by the Department Director of DSD and I will elaborate. The short version of the origin of the Communication request is that the ITF has had heated discussion about the Parks Element and some of the committee thought h that we should share our findings with the Planning and Zoning Board as the Local Planning Agency.

First, I would like to point out that the Motion for the Communication request came from Jacquelyn Scott, the Commission's very appointment to the ITF as a member of the P & Z Board and was seconded by myself, a 24 year member of the P & Z Board. That should be telling that current and past P & Z members thought the ITF's comments were worth sharing with the P & Z Board. Isn't inter- board communication what the commission desired by having a P & Z board member appointed to the ITF? Ms. Scott, as a member of the P & Z Board can certainly comment on her knowledge of a Comp Plan Element as a private citizen but three or four hours of the ITF's comments and conclusions certainly seems to be a more appropriate method of conveying ideas that the ITF discussed.

Secondly, the ITF has been reviewing the Elements of the Comprehensive Plan since our ITF meeting in March. The Back-up information for our meeting/agendas has been provided by the staff from the Director of Public Works and staff presentation at our ITF monthly meetings which has been led by an employee of DSD. My guess is that the ITF has expended at least an hour and a half at each of our last four months meetings discussing the Elements of the Comp Plan. I have no idea how much staff time has accumulated on DSD's clock in preparation for their monthly presentations. A snippet of the ITF agenda for June, developed by the Chair, the Deputy Director of Public Works and Lorraine Tappen, DSD and listed our discussion certain Infrastructure Elements of the Comprehensive Plan including Parks and Recreation, Transportation, and the CIE Element.

It is regrettable that in your conversation with an ITF member you might have been misled but in my opinion your comment was a misrepresentation of any ITF's discussion. The ITF only spoke of

money/budget issues as related to the use of City funds for land acquisition from the Parks Bond Issue.

The Mayor comment that the ITF was exceeding the Commissions mandate that is operating outside of the ITF's scope was in my opinion, far from reality. The ITF's responsibility as listed under Purpose below would include the "review and identify funding sources". I have provided an abbreviated outline of the enabling Ordinance's scope below:
The Purpose of the ITF:

- To review the City infrastructure, condition and plans for the future needs including; roads, sidewalks airports, seawalls, treatment plants, well fields, water and wastewater distribution …. Parks and all City facilities.
- To review and identify funding sources….
- To monitor and report progress to the Commission on current and future infrastructure programs

  It is the third bullet item that the ITF was looking for direction on as the purpose only lists the Commission and not other city boards. It was that area of concern that triggered the Commission Communication Request to permit our comments to be disseminated to the P & Z Board.

All of the issues raised above are somewhat irrelevant based on the Mayors final comments that "there is no need for the ITF to contribute comments to either the P & Z Board or the Commission about the Comprehensive Plan." The Mayor has made the ITF's past work or any further comments a complete waste of staff and members time.

In the last four months I have invested more than 100 hours in reviewing just the Parks Element of the CP and have sent two memos to the ITF which are available should you wish to review my findings and recommendations. In view of the Mayors comments at the recent Conference meeting the Commission seems to agree that there is a complete lack of interest to seek input from the ITF on the Comprehensive Plan. "

RE: Updated FT. Lauderdale Comp. Plan Feedback
DATE: 6/26/2019
FROM: Christina Currie
"I would personally like to see the following for the future of our City. Please plug these into whichever areas of your work you find most appropriate:

- Improved quality of public schools in our City, more public/parks spaces and public art.
- Affordable housing dispersed evenly throughout the City.
- When projects go to the DRC and/or Planning and Zoning require contact of adjacent neighbors/associations etc. rather than "strongly encouraging."
- Enact density limitation in RAC-CC and minimum unit sizes citywide.
- Regarding Development Parking: mandate instead of "strongly encouraging" bike parking, "strongly encourage" alt. vehicle parking requirements to consider future technology which may develop (ie, scooter), require loading zones in RAC-CC, and eliminate exemption of off-street parking requirement in RAC-CC.
- An increase in green building practices.- not just for new projects but especially on City owned space/property. (solar lights/power, recycled water for irrigation)
- Requirement of aesthetically pleasing fence covers at construction sights.
- Improved appearance at entry to our City near airport at & along Federal Highway corridor: clean-up area bordering port fence and require commercial properties along Federal to have more landscaping. In particular, small plazas & small motels to increase separation from road/property and increase aesthetics.

    - Community enhancement needs to make sure as time passes the landscaping requirements are still being met.
- Improve appearance at entry to City along Marina mile. Current signage and landscaping is unimpressive.
- Establishment of a youth advisory board to encourage youth engagement specificing # of minor's required from EACH district."

RE: Comments on the Comp Plan
DATE: 6/27/2019
FROM: Marilyn Mammano

"Attached are some preliminary comments on the Comp Plan that were discussed at the last ITF meeting. They represent my individual comments since the ITF Committee has not and may not take a position. I also want to supplement these comments with some observations regarding the recent P&Z workshop especially the discussion about the Parks Element. I would appreciate it if you would forward these comments to the members.

Parks and Recreation Element

The proposed Comp Plan Parks Element essentially says implement the Parks and Recreation Master Plan. So we have to look carefully at that. (See attached)

1. The inventory of parks and open space includes not only traditional parks and the beach it also includes anything that the Parks Department maintains. So some school playgrounds that are not always available are counted as well as miscellaneous open spaces like street medians. Therefore the inventory number of 956.5 acres is in my opinion on the high side.
2. The population number is on the low side, using numbers form 2014 of 176,013. Not only doesn't it include the tourists and workers, I don't think it takes into account the snow birds who are here for a few months a year and all use parks.
3. Therefore saying the current LOS for parks is 5.6 is in my opinion on the high side because the park acreage is high and the population number is low. It also is a gross number that as you know doesn't reflect the unequal distribution of parks/open space across the city. If you took out the beach the whole LOS goes way down and that is how many city residents experience it. So let's not get so excited about improving on the miserable LOS of 3 acres per 1000 population that was in the 2008 Comprehensive Plan. I think the current LOS of 5.6 is misleading and certainly high. For sure we should not accept any decrease in that LOS. I think we should do the following:
1. Recalculate the LOS using more up to date population numbers and count in at least a percentage of the non resident population.
2. Recalculate the LOS from a gross city wide number to an area wide or neighborhood wide basis. (Equity and Access)
3. Plan for not decreasing the LOS but increasing it based on a more sophisticated distribution of parks across the city. Perhaps the downtown core needs a more urban LOS and the neighborhoods need a higher LOS?
4. Prioritize the disposition of city owned land 1. Parks where the LOS is low, 2. Affordable housing anywhere it makes sense, 3.economic development in redeveloping neighborhoods.
5. Establish a % of the Parks Bond funds for acquisition of new open space. Maintenance and upgrades will eat up that money fast."

- Access (Distance or Travel Time)

population grows.

Table 3-28: Fort Lauderdale Acreage LOS Analysis per 1,000 Population

Park Type	Current Level of Service (Pop. - 174,613)*			2030 Estimates (Pop. - 203,672)**		2040 Estimates (Pop. - 208,416)**	
	Number of Parks	Acreage	2014 LOS (Acres / 1000 pop)	2030 LOS (Acres / 1000 pop)	2030 Acreage needed to maintain current LOS	2040 LOS (Acres / 1000 pop)	2040 Acreage needed to maintain current LOS
Total Parks	104	954.30	5.43	4.73	141.41	4.58	177.18
Large Urban Parks	3	319.19	1.81	1.56	47.24	1.53	59.13
Community Parks	9	102.42	0.58	0.51	15.19	0.49	19.01
Neighborhood Parks	47	99.99	0.51	0.44	13.17	0.43	16.48
Special Use Parks	18	372.29	2.13	1.84	55.13	1.78	68.74
Urban Open Space	21	11.83	0.07	0.06	1.75	0.06	2.19
School Parks	6	47.57	0.26	0.23	6.13	0.22	11.41
Other Parks							
Wide Parks	1	144.02	0.74	0.62	24.09	0.60	30.72

* Source: 2014 U.S. Census Population Estimate
** Source: Broward County Planning and Environmental Regulation Division

Note from the Chair (2 pages)

Hello Members of the ITF,

Below are some suggested examples of ITF Comments on the Proposed Comp Plan to the P&Z and City Commission. I send this on to you to start the discussion about how we could comment on the Comp Plan Update. I probably left out some of your comments over the last two meetings and I apologize.

Marilyn

1. In the Infrastructure Element there are at least 13 references to evaluation methods as "Record of" referencing anything from reuse alternatives, participation in, improvements to, etc. (see attached list). There is no indication of who is being reported to, on what schedule, and what standards or goals we are trying to reach. This happens in other Elements as well.

2. Incorporate the recommendations of the ITF in the appropriate sections as policies regarding:
    a. Devote a consistent % of the City's general revenue to capital construction (Transportation).
    b. Prohibit transfer of enterprise funds for storm, water, or sewer fees (Capital Spending).
    c. Update and review all impact fees on a biannual basis (Infrastructure).
    d. Continue to adjust water storm and sewer rates for equity and conservation as well as bonding capacity (Infrastructure).

3. Recommend that the City increase the level of service for parks/open space beyond the current 5 acres per 1000 residents. The policy would be: (See Fred's email)
    a. Include the tourist and seasonal population in calculating the LOS.
    b. No reduction in existing parks or open space.
    c. No sale of city owned land for private development without an equivalent or better open space.
    d. Identify and purchase any existing open space that would be appropriate for park development in the future.
    e. Increase the open space requirements for all new high-density developments.
    f. Other.

4. Recommend that the City review LOS for traffic based on context. The policies would be: (see Peter's email)
    a. Recalculate LOS based on mobility not car counts.
    b. Establish LOS for streets based on the adjacent land use not desired throughput.

5. Other member's emails and comments to be included (including discussion at the June 3, 2019 meeting).

Excerpts from the Infrastructure Element 2020 Advance Fort Lauderdale Comp Plan (Proposed)

Evaluation Measures

Record of the City achieving and maintaining levels of service standards established for the City and the Central Wastewater Region.

Record of planned and funding sources for expansions to wastewater collection and treatment facilities and services to meet projected 2035 ows.

Record of conversions from septic tanks to connections to the wastewater collection system.

Record of City participation in intergovernmental coordination programs for wastewater treatment facilities and services.

Record of the City providing potable water service to meet the demands at adopted levels of service.

Record of City participation in interlocal agreements for potable water services.

Record of City annual average daily demand showing continued reduction in per capita water use.

Record of City including water reuse alternatives in future utility system master planning. 2. Instances of private developers incorporating water reuse projects into new development.

Record of service extensions to areas experiencing redevelopment.

Record of City designation of Conservation Areas on the City's Future Land Use Map (Series). 2. Record of review of site plans by the City's Stormwater Operations Section of the Utilities Division.

Record of participation in Federal Emergency Management Administration (FEMA) program.

Record of participation in the NPDES program.

Record of improvements to drainage facilities necessary to meet the drainage needs and increase in drainage capacity as identified in the Broward County Drainage Assessment.

RE: Parks and Recreation Element of the Comprehensive Plan
DATE: 6/28/2019
FROM: Fred Stresau

"As you know the Commission turned down the ITF's request to share information from the committees discussions on the Parks and Recreation Element with the P & Z Board last Tuesday so I am providing two personal takeaways on the Parks Element of the Comprehensive Plan as a private citizen not a member of the ITF. I have attached two documents regarding the Parks and Recreation Element. The first document -Memorandum - May 31- is full of technical information on what is Loss of Service, the population projections, Bond funding, etc. The second document (Scan 0003) is my personal discussion on whether or not the Plan Element should utilize a slightly lower LOS than staff is currently recommending. In order to evaluate what the staff is recommending, one must determine what the current parks character actually physically looks like on the ground. I have posed the question that if the existing parks inventory is satisfactory and one were to subtract the 200 acres allocated to the Beach Open Space, then the current LOS is at about 4/1000. My focus or reasoning is that the acreage projection for 2045 at 4 acre/1000 is a much more manageable acreage number for the City to acquire than the 5 acre/1000 the staff is currently recommending. The difference between the 4 and 5 LOS number equates to the need for acquisition of about 31 acres at 4/1000 and should the Commission accept the Parks Element at 5/1000 there would be a 278 acre shortfall. Far more acreage than either the Bond money of the Impact fee could possibly support. One MUST keep in mind that the City Ordinance C-06-14 which establishes the Park Impact Fee sets a second standard under Policy 1.2.2 which states that if the LOS ratio falls below the Parks Element threshold due to the increase population then the City cannot issue any further Site Plan approvals until additional park land is acquired. Essentially a moratorium! ITF Memorandum from May 31 docx provides below an outline of comments on the issues concerning the Loss of Service.

Page 1 Decision and recommendation for the Comp Plan to utilize LOS at 3 or 5 acres per 1000 residents
Ordinance C-06-14 Park Impact fee discussion
Page 2 Questions raised by the ITF and staff responses
Page 3 Definition of Open Space
Page 4 Discussion of population increase as that affects the LOS
Page 5 Restriction on the issuance of building permits should LOS fall below the ratio of LOS in the Comp Plan.
Discussion on the definition of Open Space.
Page 6 Open Space discussion
Page 7 Funding and the Parks Impact fees
Page 8 RE-cap of the Parks Bond to fund land Acquisition
Page 9 Development costs for each park type"

Infrastructure Task Force Memorandum **May 31, 2019**

I have a particular interest in the Parks and Recreation Element of what the Planning Department has presented and would like to have the ITF read my notes from the various City sources so that we might be prepared to further discuss what the ITF's recommendations might be to the City Commission.

Fred Stresau
May 31, 2019

Infrastructure Task Force June 3, 2019 meeting
The most critical decision that must be discussed and an advisory position forwarded to the City Commission by the ITF is whether or not to submit the Comprehensive Plan – Parks Element- with the level of Service listed at 3.0 acres/1000 residents(Broward County requirement) or to increase that area to 5.0 which has been presented as a future goal of the City by the Planning Department in the revised Parks Element.

It is important at this time to understand that Ordinance C-06-14 establishing the Park Impact Fee authorizes the expenditure of collected funds for a multitude of things as well as the acquisition of park lands. More vital to the ITF's understanding for this Ordinance is the Policy 1.2.2 sets the standard for the issuance of a site plan approval……as long as the City ensures that Parks can meet the level of service established by the Comp Plan.
In order to meet the future Open Space requirements beyond the 2025 date the City will need to lower the Loss of service to 3.0 acres/1000 residents, or lacking that adjustment, acquire more park land and or identify all of the City Open Space.

At last month's ITF meeting, May 3rd the general discussion on the Parks Element of the Comprehensive Plan centered on several questions and lasted some 35 minutes.

Staff was requested to provide answers to questions from the committee and we should review those before we go on to the principal objective and that is to review the Parks and Recreation Element of the Comprehensive Plan and work towards our ultimate goal of advising the City Commission on any policy changes we feel worthy of considering.

The questions and staff responses have been distributed prior to this meeting and they are as follows:

What comprises the 950 acres currently listed in the Parks and Recreation Master Plan?

Includes community parks, special use parks, large urban parks, neighborhood parks, school parks, and urban open space

Where does the ratio of 5 acres per 1,000 residents come from.

Based upon an analysis of our current population of 182,000, the city is providing 5.26 acres of parks per 1,000 people. The goal set forth in the Parks Element is to maintain the existing level of service 5 acres of park and open space per 1,000 residents. The adopted comprehensive plan level of service is 3 acres per 1000 residents.

Is the ratio based on a safety or health fact

Parks and open spaces play a role in contributing to economic development and revitalization, healthy outcomes for city residents, and green infrastructure solutions for managing stormwater.

How does the seasonal population figure in?

The level of service analysis uses the city's permanent population. The Parks Master Plan recommends that in addition to the focus on the full-time residents of Fort Lauderdale, with significant number of seasonal residents and tourists in the community, future programming should address these two markets as well. When assessing needs and priorities, the city will need to "attempting to serve from the occasional visitor or tourist who is looking for something unique or special, to the seasonal resident who desires special activities and facilities, to the full-time resident who may have more traditional needs. Added to this is the need to serve the special needs segment of the community in an effective manner which is often through partnerships with other organizations."

Discern the difference between "open space" and "parks"

The City provides other areas of open space that contribute to the aesthetic enhancement and overall livability of the community and thus many of these properties can be legitimately considered in the open space category.

Joe - Open space is land that is undeveloped that has no buildings and is accessible to the public.

Joe -A park is an area of land, usually in a largely natural state, for the enjoyment of the public, having facilities for rest and recreation.

Fred -From the **Park Systems Plan**

Urban Open Space

Description: Areas of developed City property of a minimum of 0.1 acre. These areas have varied uses and purposes. They could be enhancements of the immediate surrounding streetscapes or neighborhoods, entranceway dedicated by the developer for parkland, water tower or other utility sites, oversized rights-of-way or medians. Typical development may include turf, trees, shrubs, irrigation, benches, trash receptacles, picnic tables, vehicular barriers, paved parking or walkways, signage and lighting. A 1/4-mile service radius is typical. Table 3

How will parks and/or open space be handled with new development?

Park impact fees will continue to be collected for building permits for each new dwelling unit and hotel/motel room. With the codification of the Downtown Master Plan into the unified land development regulations (ULDR), code language will be developed to support a continuous network of public and private spaces that collectively contribute to the public realm.

The most significant response and one that will influence our discussion today is the definition of Open Space.

From the Parks Element – page 1-

> *For the purpose of this element, open space will be addressed both in terms of its association with recreation and its aesthetic value within the urban environment.*

There are several statements in the Parks Element that I wish to have the ITF review and be aware of simply because I believe that the Parks Department is more focused on the management and maintenance of the park system than where the requirements of the City demand.

From the Parks Element – page 1

- *The Fort Lauderdale Parks and Recreation Department has the responsibility for the management, programming and maintenance of over one hundred different facilities and parks.*
- *The City is concerned about preserving, upgrading and retrofitting its park facilities to keep pace with the redevelopment.*

From the Parks Element – page2

- ***There are likely to be very limited opportunities for the acquisition of new parklands and innovative methods will have to be utilized towards expanding the park system.***
- ***Concerns will be for the ongoing modernization and enhancement of existing facilities.***

Let's talk population increase.

The Parks Element outlines that the City currently provides a bit more than 5 acres/1000 residents.

The Parks Element outlines that by 2015 the Level of Service (LOS) will just barely meet that requirement and that by 2045 the City will have a shortfall of some 235 acres of Park and Open Space. Staff has commented that these figures may not be correct but the recent article in the May 21 Sun-Sentinel article by Johnson @FAU- on population growth in South Fla. from the US Census projects of 15-16% in the next 10 years. From the Parks Element the projected LOS in 2020 is for 180,000 residents @ 5.31. The ten year (2030) population projection from the Parks Element is for 223,000 @ 4.29 where as using Mr. Johnsons numbers, the population might be about 209,000. Johnson's number was for South Florida and it is likely that with the City's Downtown growth the number in the Parks Element is closer to being correct.

It is to that specific fact that I believe that the ITF needs to focus and consider recommended changes to the Parks and Recreation Element.

The Planning Staff suggested at the May 2019 meeting that perhaps another planning avenue might be considered for the development of Open Space, that of open air restaurants .....

That thought is reflected in the final Parks Element

From the Parks Element – page2

- ***Aesthetic enhancement and continuity well need to command a greater priority in both private and public development.***

In reviewing the past and current construction in our urban core the one design element that jumps out is that **the private development** for the most part has optimized the site coverage at the expense of little or no public open space. Developer greed and the result of no zoning requirements for increased street setbacks, wider sidewalks, plazas or other desired open space were never included in the ULDR.

Photos added to the May meeting images the illustrate Urban Open Space.

City Hall, Federal Courthouse, City Park

The exceptions for open space seem to all be from the public facilities.

Photographs.

110 Tower, Sun-Sentinel, Stiles new project, Waverly-(Not Yet Included)

It is important at this time to understand that the Ordinance establishing the Park Impact Fee authorizes the expenditure of collected funds for a multitude of things as well as the acquisition of park lands. More vital to the ITF's understanding for this Ordinance is the Policy 1.2.2 sets the standard for the issuance of a site plan approval.....as long as the City ensures that Parks can meet the level of service established by the Comp Plan.

In order to meet the future Open Space requirements beyond the 2025 date the city will need to lower the Loss of service to 3.0 acres/1000 residents, or lacking that adjustment, acquire more park land and or identify all of the City Open Space.

HOW DO WE IDENTIFY OPEN SPACE

Accordingly, there are several avenues that can be explored. every possible alternatives for identifying existing Open Space should be made in order to bank acreage against the possible future needs.

Existing Open Space not already identified.
From the Parks Element – page 21
There are approximately 124.5 acres devoted to Streetscapes

Streetscapes- While these areas of greenery are largely intended to serve as aesthetic enhancements, many are of such width that the area should clearly be identified as pedestrian or bicycle paths. Listed below are just 2 typical area calculations

- **Dixie Highway** between Sunrise and Andrews Ave. Approximately 2500 ft in length and averaging 24 ft in width. The estimated total area would be 60,000 SF or 1.3 acres – see photo
- **Ponce de Leon** between US #1 and the Huizinga Circle – there is approximately 3,700 ft in length and at 25' in width the total estimated area would be 92,500 sf or 2.1 acres- see photo

Waterways - Open Space as adjacent to Street ends –Understand that the current Parks list contains some street ends already.

- **Cordova Road** between SE 11th Ct. and SE 7th St.
  New seawall construction may provide a narrow area of some 14 ft by 2,200 linear feet of greenery. The area would be approximately 30,000 sf or .7 of an acre

- **Las Olas Blvd.** Not much is available except to the area adjacent o the canal ends but according to the Open Space description these should count.

ULDR requirements for Open Space
Interdistrict Corridors This zoning ordinance, passed in 1997 requires a developer to devote the first 20 ft. of the site to promote an environment supportive of pedestrian and sufficient landscape area to support proper shade tree growth. These certain corridors are intended to accommodate, intensive pedestrian traffic and major vehicular entryways, or major gateways into the city.
Any area contributions to the Open Space calculations would require extensive work but these areas might in my opinion, be considered as no different that urban plazas.

- **North Federal Highway**—between Sunrise Boulevard and the northern city limits.
- **East Sunrise Boulevard**—between Federal Highway and one hundred (100) feet east of Bayview Drive.
- **S.E. 17th Street**—between Federal Highway and Eisenhower Boulevard.
-

GAA and AIP districts. - Sec. 47-14.21. - Dimensional requirements
the City has established a 100 foot easement along many of the major thoroughfares in these districts. Cypress Creek

FUNDING AND THE PARKS BOND

In 2006 the City recognized that future developments should become more responsible for funding park development and a City ordinance for establishing a Park Impact Fee was passed: # C-06-14. This ordinance imposed a graduated fee scale on all residential and hotel construction. Based on a per unit contribution of approximately $2,400, the fund has collected over $20 million dollars since 2013.

The Parks Impact Fees collected are as follows:
2013 - $ 3,050,000
2014 - $ 1,900,000
2015 - $ 2,324,000
2016 - $ 1,533,000
2017 - $ 5,202,000
2018 - $ 6,057,000

A copy of the City Managers Memorandum (LF)18-014 for the expenditure of some of these monies for 2018 are included for information but in reviewing his recommendation one will note that of the 8.7 million dollars itemized only 1.2 or less than 15% was to be spent on park land acquisition.

Also provided is a copy of page 72 o the City of Fort Lauderdale Community Investment Plan (CIP) for the FY 2020 – 2024 which defines the Strategic Goals, Objectives and a goal of allocating 6.8 M for land acquisition.

Comments on the recent Parks Bond - The Parks Department provided these numbers just prior to the Bond Vote in March of 2019. The total expenses for both the Land acquisition and Development is $72 M dollars of the entire Bond $200 M for land development for all Districts.

PARKS BOND funding re-cap with regard to Land Acquisition and Development
LAND ACQUISITION -40 acres 49M

Urban Parks
District 2 3 acres at 3M per acre
District 4 3 acres at 3M per acre

Neighborhood Parks
District 2 7 acres at 1.5M per acre
District 4 7 acres at 1,5M per acre

Community Parks
District 1 10 acres at .5M per acre
District 3 10 acres at .5M per acre

DEVELOPMENT COST-40 Acres 23M

Urban Parks
District 2 3 acres at 1M per acre
District 4 3 acres at 1M per acre

Neighborhood Parks
District 2 7 acres at .5M per acre
District 4 7 acres at .5M per acre

Community Parks
District 1 10 acres at .5M per acre
District 3 10 acres at .5M per acre

The Development cost for Neighborhood Parks is indicated as .5 M per acre. .
If one considers the cost for these parks for cleanup rather than adding playground equipment – etc.. the minimum cost might be as follows.

Demolition and site clean-up costs	$100,000
Grass and Irrigation	$ 50,000
Minimal lighting for security FPL	$ 50,000
Total	$ 200,000

With the purchase and minimal development the total cost for these 14 parks would be in the area of $ 3,000,000 or a saving of about 4 M dollars that could go toward land acquisition from this area only.

The Development cost for Community Parks is also indicated as .5 M per acre. Utilizing the identical numbers for demolition, clean-up grass and Irrigation of $ 200,000 the total cost for development of these 20 acres would be in the area of 4 M dollars or a savings of about 6 M dollars.

The Development cost for Urban Parks is also indicated as 1 M per acre. Demolition in the Urban core is a bit more dicey so any saving in this category is questionable as is whatever design might be proposed as any type of plaza or fountain would certainly chew up the number proposed.

In any event the concept of utilizing the above savings for additional property acquisition might yield another 10-12 million dollars to the 49 M already allocated.

The Park Impact fees collected since 2013 total over 20 million dollars (already partially spent) but should we begin to get the idea that the acquisition of future park and open space acreage is not as impossible as one might think.

The second attachment – Scan #0003 – is an analysis of the Parks and Recreation Loss of Service An outline below summarizes factors that will affect the decision on what number or ration the city finally adopts for the Comp Plan.
Page 1 Definition of Loss of Service
Identification of LOS for several Plans. Parks Master Plan/2019 CIP Parks Element/Broward County/State Outdoor Comp Plan
A case for reducing Parks and Recreation Element from 5 to 4/1000 residents
Page 2 Charts for population growth from the City Strategic Master Plan and he CIP Parks Element/April 2019
Page 3 Population projections with reference to required acreage with different LOS numbers
Page 4 Identification of Parks Bond monies for Acquisition and Development
Page 5 Summery of Parks impact fees since 2013"
Page 6 Summery of potential monies from the Bond and Parks Impact fees thru 2045
Summation for LOS Reduction based on utilizing 4 acres/1000 residents
Page 7 Summation for Acquisition and Development costs based on 4 acres/1000 and Parks Department cost projections for the Urban and Neighborhood parks"

A Case for Reducing the Parks Element LOS from 5 to 4 Acres/1000 residents.

What is LOS and how does it affect the City of Ft Lauderdale?

LOS – a planning term to identify the Loss of Service. In the case of the Parks Element of the Comprehensive Plan when the acreage ratio of Parks and Open Space to 1000 residents falls below the accepted acreage per 1000 residents.

There are several references to the LOS in the various plans.

Parks and Recreation System Master Plan – accepted by the City Commission in 2016 identifies 957 acres of public park lands that in terms of 2014 population translates to an Acreage LOS of 5.43 acres per 1000 residents. The verbiage goes on the highlight that as the population increases through 2040 the ratio will fall below 4.58.

The 2019 CIP – Parks and Recreation Element- presented by the Planning staff on April 1st recommends 5.0 acres /1000 residents. Chart also highlights that by 2045 the City's LOS ratio will fall to approximately 3.86

The Broward County identifies the acreage of LOS at 3.0

The Statewide 2013 Outdoor Comprehensive Plan targets LOS at 6 acres

Ironic numbers.

Fort Lauderdale's current population for the year 2019 is 182,000 and per JK the LOS is 5.26

The OS acreage for entire city is 956 ac.–of that the Beach represents 200 acres. If the beach acreage is deducted from the overall park acreage the total for the City would be 756 acres. A reflection of the Open Space character for the rest of the city the LOS would be more like 4.15 acres/1000 residents.

If as the public input indicated by the neighborhood input for the Master Plan, the existing facilities are satisfactory that perhaps the ITF should consider utilizing that number for the LOS for the Parks Element.

A Case for Reducing the Parks Element LOS from 5 to 4 Acres/1000 residents

The following Population chart was taken from the City's Strategic Master Plan

Table 2-1: City of Fort Lauderdale Population Projections

Year	City of Fort Lauderdale** Population	% Change
1990	149,238	-
2000	152,397	+2.12%
2010	165,521	+8.75%
2015	172,119	+3.86%
2020	177,625	+3.20%
2025	192,165	+8.19%
2030	202,072	+5.16%
2035	205,769	+1.83%
2040	208,618	+1.38%
1990-2040 % Change		+40%

* Source: Florida Office of Economic and Demographic Research
** Source: Broward County Planning and Environmental Regulation Division

The following chart was taken from the CIP-Parks Element/April 2019

Projected Park Level of Service: Park Acreage Per 1,000 people

	2015	2020	2025	2030	2035	2040	2045
Population	175,228	179,997	208,747	222,915	232,419	240,134	247,613
Acres/1000 people	5.46	5.31	4.58	4.29	4.12	3.98	3.86

It is obvious that the two population charts do not agree but for now we will follow the chart included in the April 1, 2019 Draft Capital Improvement Element for Parks. The chart below indicates the Populations effect on the LOS from the current year 2020 to 2045 with the objective to show the shortfall of park acreage based on different variations of the LOS.

The total acreage in the City in 2019 is 957 acres

In 2020
179997 x 3 = 540 acres
179997 x 4 = 720 acres
179997 x 5 = 900 acres

In 2025
209000 x 3 = 609 acres
209000 x 4 = 836 acres
209000 x 5 = 1045 acres Shortfall of 88 acres

In 2030
223000 x 3 = 669 acres
223000 x 4 = 892 acres
223000 x 5 = 1115 acresShortfall of 158 acres

In 2035
232400 x 3 = 698 acres
232400 x 4 = 929 acres
232400 x 5 = 1162 acresShortfall of 205 acres

In 2040
240000 x 3 = 720 acres
240000 x 4 = 960 acres
240000 x 5 = 1200 acresShortfall of 243 acres

In 2045
247000 x 3 = 741 acres
247000 x 4 = 988 acres Shortfall of 31 acres
247000 x 5 = 1235 acres Shortfall of 278 acres

The April 1, 2019 staff presentation of the Analysis of Park Acreage for Updated Park Level of Service at 5 acres per 1000 people indicates that by the year 2045 the city will need to provide some 281 additional park acreage acres.
The question at the ITF May meeting was "how does the City provide the 281 additional acreage, or is it even possible to provide such acreage?"

What monies are or will be available for the acquisition of new park land.
Parks Bond -2019

E. Land Acquisition and Development				
Urban Parks				
Development of Urban Parks to Maintain LOS				
District 2 Acquisition (3 Acres at $3M per acre)	ls	3	$3,000,000	$9,000,000
District 2 Development (3 Acres at $1M per acre)	ls	3	$1,000,000	$3,000,000
District 4 Acquisition (3 Acres at $3M per acre)	ls	3	$3,000,000	$9,000,000
District 4 Development (3 Acres at $1M per acre)	ls	3	$1,000,000	$3,000,000
				$24,000,000
Neighborhood Parks				
Development of Neighborhood Parks to Maintain LOS				
District 2 Acquisition (7 Acres at $1.5M per acre)	ls	7	$1,500,000	$10,500,000
District 2 Development (7 Acres at $0.5M per acre)	ls	7	$500,000	$3,500,000
District 4 Acquisition (7 Acres at $1.5M per acre)	ls	7	$1,500,000	$10,500,000
District 4 Development (7 Acres at $0.5M per acre)	ls	7	$500,000	$3,500,000
				$28,000,000
Community Parks				
Development of Community Parks to Maintain LOS				
District 1 Acquisition (10 Acres at $0.5M per acre)	ls	10	$500,000	$5,000,000
District 1 Development (10 Acres at $0.5M per acre)	ls	10	$500,000	$5,000,000
District 3 Acquisition (10 Acres at $0.5M per acre)	ls	10	$500,000	$5,000,000
District 3 Development (10 Acres at $0.5M per acre)	ls	10	$500,000	$5,000,000
				$20,000,000
			Land Acquisition Subtotal:	$72,000,000

PARKS BOND funding re-cap with regard to Land Acquisition and Development

LAND ACQUISITION -40 acres	**49M**
DEVELOPMENT COST-40 Acres	**23M**
Total	**72M**

The concept of utilizing the Development Costs - savings to be utilized for additional property acquisition might yield another 10-12 million dollars to the 49 M already allocated.
This revised total might be in the neighborhood of 60 M dollars

A summation of the above Impact Fees is outlined in the chart below.

		2013	2014	2015	2016	2017	2018	Ytd 2019	FY 2013 - FY 2018	FY 20 FY 20
N398	PARK IMPACT FEES/INTEREST BEARING	3,049,850	1,873,324	2,324,600	1,533,012	5,202,930	6,057,579	2,017,552	20,041,295	22,
N963	IMPACT FEES - SEWER	2,816,981	1,625,600	3,026,696	2,053,560	4,439,001	4,809,902	2,984,662	18,771,740	21,

The total dollars collected from 2013 to 2019 TD is more than 20 M dollars. The City Managers Memorandum (LF) 18-014 for the expenditure of these monies for 2018 note that of the 8.7 million dollars itemized only 1.2 M or less than 15% was to be spent on park land acquisition.
If one totaled the above Parks Impact Fee for the 6 year period beginning with 2013, the average would be approximately 3.3 M per year.
Depending on the economy the estimated City intake for the period from 2020 - 2045 one might expect this fund could capture some 75 M dollars.

A cost recap for Land Acquisition & Development

Bond dollars for acquisition	49 M
Bond dollars from development cost savings	12 M
Parks Impact Fees 2020-2045	75 M
Total	136 M

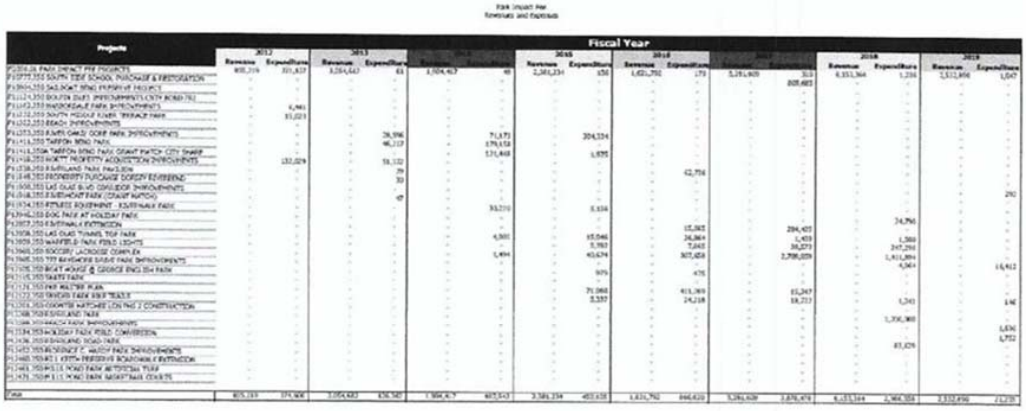
Summation for LOS Reduction:

If the projected population of the City for the year 2045 is 247,000 residents and the City were to utilize the LOS for the Parks and Recreation Element of the CIP at 4.0-(the represents true character of the Open Space throughout the City), then the required Open Space acreage would be 988 acres compared to the existing acreage today of 957 acres.

The differential of approximately 30 acres seems to be a manageable number of acreage for the City to consider purchasing/develop to meet the CIP element if the Parks and Recreation Element for LOS.

Parks Impact Fees

In 2006 the City recognized that future developments should become more responsible for funding park development and a City ordinance for establishing a Park Impact Fee was passed: # C-06-14. This ordinance imposed a graduated fee scale on all residential and hotel construction. Based on a per unit contribution of approximately $2,400, the fund has collected over $20 million dollars since 2013.



Projects	Fiscal Year								
	2012 Budget	2013 Budget	2014 Budget	2015 Budget	2016 Budget	2017 Budget	2018 Budget	2019 Budget
FD350.01 PARK IMPACT FEE PROJECTS	-	-	-	-	-	-	-	221,107
P10777.350 SOUTH SIDE SCHOOL-PURCHASE & RESTORATION	-	-	-	-	809,685	-	-	-
P10904.350 SAILBOAT BEND PRESERVE PROJECT	59,606.60	-	-	(59,687)	-	-	-	-
P11102.350 HARBORDALE PARK IMPROVEMENTS	6,440.85	-	-	-	-	-	-	-
P11222.350 SOUTH MIDDLE RIVER TERRACE PARK	15,022.99	-	-	-	-	-	-	-
P11322.350 BEACH IMPROVEMENTS	-	-	70,000	-	-	(70,000)	-	-
P11353.350 RIVER OAKS/ GORE PARK IMPROVEMENTS	241,809.26	151,996	16,000	-	(5,782)	-	-	-
P11411.350 TARPON BEND PARK	225,375.26	125,000	(125,000)	-	-	(0)	-	-
P11411.350A TARPON BEND PARK-GRANT MATCH CITY SHARE	-	-	125,000	-	-	(1,577)	-	-
P11418.350 HORTT PROPERTY ACQUISITION/IMPROVMENTS	183,401.50	-	-	-	-	-	-	-
P11538.350 RIVERLAND PARK PAVILION	-	75,000	-	-	-	-	-	-
P11849.350 PROPERTY PURCAHSE DORSEY RIVERBEND	-	39	-	-	-	-	-	-
P11900.350 LAS OLAS BLVD CORRIDOR IMPROVEMENTS	-	-	-	-	-	-	2,500,000	-
P11918.350 RIVERMONT PARK (GRANT MATCH)	-	200,000	(199,953)	-	-	-	-	-
P11934.350 FITNESS EQUIPMENT - RIVERWALK PARK	-	40,000	-	-	(4,623)	-	-	-
P12046.350 DOG PARK AT HOLIDAY PARK	-	-	-	-	-	-	34,798	-
P12057.350 RIVERWALK EXTENSION	-	-	300,000	-	-	-	-	-
P12058.350 LAS OLAS TUNNEL TOP PARK	-	-	500,000	-	-	66,070	263,500	-
P12059.350 WARFIELD PARK FIELD LIGHTS	-	-	240,000	-	40,000	-	20,126	-
P12060.350 SOCCER/ LACROSSE COMPLEX	-	-	1,000,000	2,700,000	-	759,765	11,014	-
P12065.350 777 BAYSHORE DRIVE PARK IMPROVEMENTS	-	-	-	-	-	25,764	-	-
P12105.350 BOAT HOUSE @ GEORGE ENGLISH PARK	-	-	-	700,000	-	-	(698,550)	-
P12115.350 SKATE PARK	-	-	-	400,000	-	(400,000)	-	-
P12121.350 PKR MASTER PLAN	-	-	-	497,576	-	-	-	-
P12122.350 SNYDER PARK BIKE TRAILS	-	-	-	50,000	-	-	-	-
P12201.350 COONTIE HATCHEE LGN PHS 2 CONSTRUCTION	-	-	-	-	-	-	-	75,177
P12268.350 RIVERLAND PARK	-	-	-	-	-	1,200,000	-	-
P12280.350 BEACH PARK IMPROVEMENTS	-	-	-	-	-	70,000	(25,764)	-
P12334.350 HOLIDAY PARK FIELD CONVERSION	-	-	-	-	-	-	2,400,000	-
P12426.350 RIVERLAND ROAD PARK	-	-	-	-	-	-	83,888	-
P12452.350 FLORENCE C. HARDY PARK IMPROVEMENTS	-	-	-	-	-	-	-	800,000
P12460.350 BILL KEITH PRESERVE BOARDWALK EXTENSION	-	-	-	-	-	-	-	73,100
P12461.350 MILLS POND PARK ARTIFICIAL TURF	-	-	-	-	-	-	-	3,000,000
P12471.350 MILLS POND PARK BASKETBALL COURTS	-	-	-	-	-	-	-	400,000
Total	731,816.66	592,026	1,926,047	4,287,889	839,280	1,650,022	4,589,012	4,569,384

Summation for Acquisition and Development cost projections:

Parks and Recreation (from the Bond information) estimates the land Acquisition costs for District 2 and 4 to be between 3 and 1.5 M per acre. For Districts 1 and 3 to be .5 M per acre.
Utilizing the larger land acquisition cost of 3 M per acre the projected cost for the 30 acres might be 90 M dollars

Parks and Recreation (from the Bond information) estimates the land development costs for District 2 and 4 to be 1 M per acre. For Districts 1 and 3 to be . 5 M per acre.
Utilizing the larger land development cost of 1M per acre the projected cost for the 30 acres might be 30 M dollars.

The Total cost projection for the Acquisition and Development.
For the following budget estimate the largest costs associated with those of the Urban and Neighborhood Parks were used.

Land Acquisition	90 M
Park Development	30 M
Total	120 M

Amazingly close to the P & R Bond budget of $123 M.

RE: Flood Adaptation and planning for Sea Level Rise
DATE: 7/1/2019
FROM: John Barranco

As most people know, trying to control the forces of nature is a sensitive subject in Florida and we should learn from our past mistakes. Not many years ago, a well-intentioned Army Corp of Engineers irreparably scarred and altered Lake Okeechobee, the Everglades, Florida Bay and many other parts of our natural environment. Now we are trying to correct our own mishaps. In the future I want to see solutions from our City that work with nature in a more symbiotic approach to counteract the issues that come from climate change. Somehow we will need to adapt and live with the idea that water will be part of our everyday lives. Blocking natures intrusion with walls is not be the best solution for our natural environment and our communities as a whole. How we deal with these challenges can be a huge opportunity for Fort Lauderdale to serve as a model for waterfront communities around the world. I have been reading about other older Countries and Cities that have been dealing with water in more integrated/ passive ways. If sea level rise is inevitable I think we need to shake off traditional ways of thinking and accept the notion that we will be living our everyday lives in a water dominated environment.

When it comes to our City's comprehensive plan I want to see more focus on how our City, that is less than 10' above sea level, will adapt to an incoming sea. How we handle sea level rise should be addressed in every element/ section of the comprehensive plan. Sea level is intertwined with every decision we will make in our City's future.

- FUTURE LAND USE ELEMENT sub section sea level rise
- URBAN DESIGN ELEMENT sub section sea level rise
- INTERGOVERNMENTAL COORDINATION ELEMENT sub section sea level rise
- SANITARY SEWER, WATER, & STORMWATER ELEMENT sub section sea level rise
- TRANSPORTATION & MOBILITY ELEMENT sub section sea level rise
- COASTAL MANAGEMENT ELEMENT sub section sea level rise
- CAPITAL IMPROVEMENTS sub section sea level rise
- CONSERVATION ELEMENT sub section sea level rise
- HOUSING ELEMENT sub section sea level rise
- EDUCATION ELEMENT sub section sea level rise
- HISTORIC PRESERVATION ELEMENT sub section sea level rise
- ECONOMIC DEVELOPMENT sub section sea level rise
- PARKS AND RECREATION ELEMENT sub section sea level rise
- CLIMATE CHANGE ELEMENT sub section sea level rise
- SOLID WASTE ELEMENT sub section sea level rise

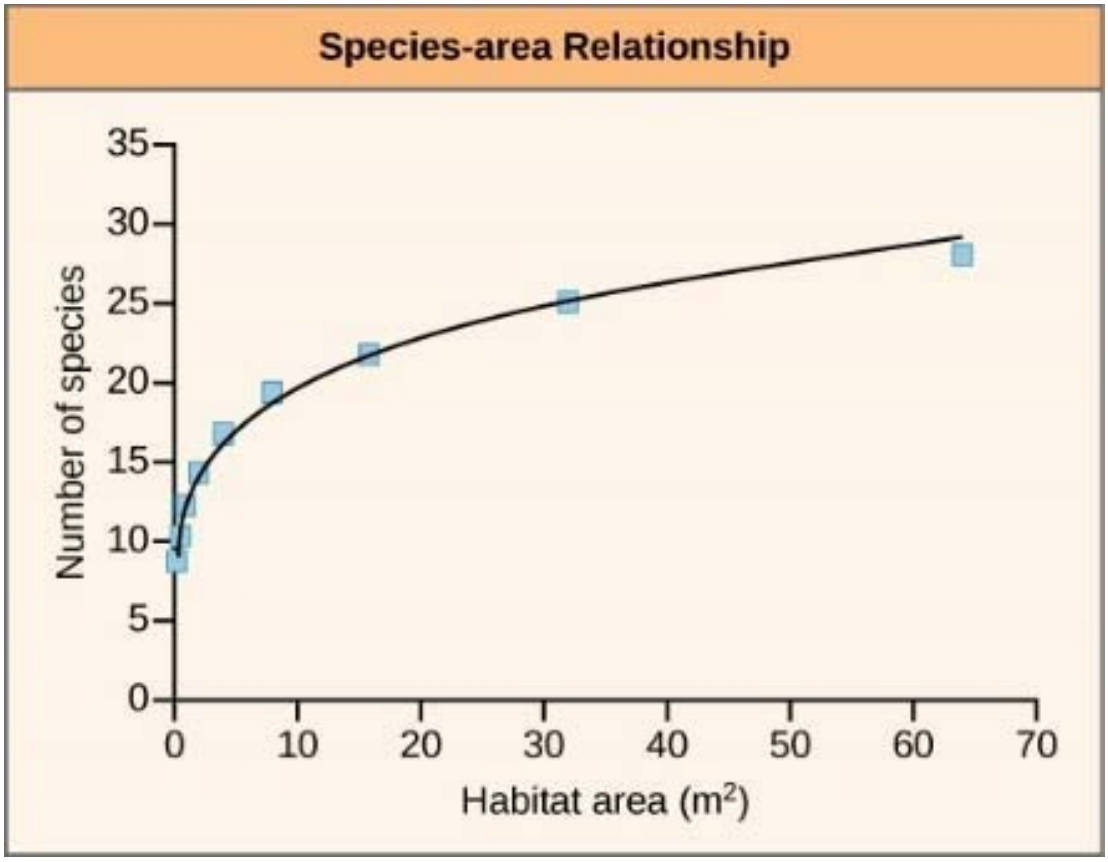
Below are some links that I found some good examples for how other communities have dealt with water intrusion issues in nontraditional ways.
https://floodcoalition.org/
https://floodcoalition.org/members/fort-lauderdale/
http://theconversation.com/design-for-flooding-how-cities-can-make-room-for-water-105844
https://use.metropolis.org/case-studies/copenhagen-climate-resilient-neighbourhood-strategy
https://theconversation.com/higher-density-in-a-flood-zone-heres-a-way-to-do-it-and-reduce-the-risks-86608
https://www.youtube.com/watch?v=VpKA3sj2nFo

RE: John Sandell
DATE: 9/9/2019
FROM: Advance Fort Lauderdale Comprehensive PlanUpdate

"Honestly, I am really quite impressed with all of the work you and your team has done to pull this kind of document together. I began to make some comments and formulate some questions, but as I read through the entire document, my comments were addressed, and quite thoroughly. All of you are really the experts, and understand the multiple dynamics of Fort Lauderdale urban policy, and working in a governmental capacity, (city, county, state), much much better than I. The above said, I would humbly leave you with a couple of remarks for your review. The first regards CC1.1 Greenhouse Gases and in relation to Policy CC 2.2.1b (LEED Silver): Could the reduction goal be more aggressive? In doing so, it could impact the choice of building typology on the part of designers; prodding designers to be more conscientious of passive energy strategies in order to improve comfort levels and reduce energy usage. (Incidentally, Scotland has just announced that all new buildings will be required to have zero carbon emissions). The second regards Objective CC 2.4: Protection of Natural Environment: Could the policy be more elaborate and also include proliferation/restoration of natural habitats on public lands? Could it also be encouraged on private land development, where larger swaths of open land within a development could be dedicate to restoration of natural habitats? The goal could also indirectly help facilitate a (distant) future land use policy which includes reducing the urban footprint (across Broward County) and therefore favoring the creation of large water retention areas and the natural restoration of these areas that are most vulnerable to future flooding. Finally, because of the comprehensive nature of the plan, would it be possible to create a graphic chart that outlines the goals and objectives and further explains, (perhaps through feedback loops or other graphic means), the interrelationship among all of the elements. I think the public, and including developers, need to better understand how the elements are closely knit and can impact one another. I can imagine a subsequent step that plans a process for public and private development to insure that all applicable objectives are met within any specific context and project type.

RE: Percent of Natural Areas Land
DATE: 9/11/2019
FROM: George Gann

"This is complex stuff with a ton of literature out in the world. Species area curves operate at an approximate log scale. And there are major differences between short term effects of fragmentation (direct habitat loss) and long-term effects of fragmentation (applied island biogeography), and differential effects on different kinds of species (e.g., large predators versus roadside weeds). All of that is complicated at the landscape scale as most of the fragmentation literature is based on a premise of uniform ecosystems, or the effects on specific species groups (e.g. birds), not mosaics of distinct ecosystems. If different ecosystems are lost at different rates (e.g., scrub versus mangroves), it throws the curves. Doing a super quick search I have attached one paper that talks about some of these complexities of measuring fragmentation effects. And here is one figure as an example (the below is before fragmentation effects).


Species-area Relationship
Number of species
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
Habitat area (m²)

ARTICLE IN PRESS

BIOLOGICAL CONSERVATION XXX (2008) XXX–XXX

available at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/biocon

Review

Theory meets reality: How habitat fragmentation research has transcended island biogeographic theory

*William F. Laurance**

Smithsonian Tropical Research Institute, Apartado 0843-03092, Balboa, Ancón, Panama
Biological Dynamics of Forest Fragments Project, National Institute for Amazonian Research (INPA), C.P. 478, Manaus, AM 69011-970, Brazil

ARTICLE INFO

Article history:
Received 2 May 2008
Received in revised form
14 May 2008
Accepted 17 May 2008

Keywords:
Area effects
Edge effects
Extinction
Fragmentation
Island biogeography theory
Matrix effects
Species turnover

ABSTRACT

Island biogeography theory (IBT) provides a basic conceptual model for understanding habitat fragmentation. Empirical studies of fragmented landscapes often reveal strong effects of fragment area and isolation on species richness, although other predictions of the theory, such as accelerated species turnover in fragments, have been tested less frequently. As predicted by IBT, biota in fragments typically 'relax' over time towards lower species richness. Beyond these broad generalizations, however, the relevance of IBT for understanding fragmented ecosystems is limited. First, IBT provides few predictions about how community composition in fragments should change over time, and which species should be most vulnerable. Second, edge effects can be an important driver of local species extinctions and ecosystem change, but are not considered by IBT. Third, the matrix of modified vegetation surrounding fragments—also ignored by IBT—can strongly influence fragment connectivity, which in turn affects the demography, genetics, and survival of local populations. Fourth, most fragmented landscapes are also altered by other anthropogenic changes, such as hunting, logging, fires, and pollution, which can interact synergistically with habitat fragmentation. Finally, fragmentation often has diverse impacts on ecosystem properties such as canopy-gap dynamics, carbon storage, and the trophic structure of communities that are not considered by IBT. I highlight these phenomena with findings from fragmented ecosystems around the world.

Published by Elsevier Ltd.

Contents

* Address: Smithsonian Tropical Research Institute, Apartado 0843-03092, Balboa, Ancón, Panama. Tel.: +507 212 8252; fax: +507 212 8148.
E-mail address: laurancew@si.edu
0006-3207/$ - see front matter Published by Elsevier Ltd.
doi:10.1016/j.biocon.2008.05.011

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

1. Introduction

Island biogeography theory (MacArthur and Wilson, 1963, 1967) has profoundly influenced the study of biogeography, ecology, and even evolution (Janzen, 1968; Losos, 1996; Heaney, 2000). It has also had an enormous impact on conservation biology. The theory (hereafter 'IBT') has inspired much thinking about the importance of reserve size and connectivity in the maintenance of species diversity, and stimulated an avalanche of research on fragmented ecosystems. Like all general models, however, IBT is a caricature of reality, capturing just a few important elements of a system while ignoring many others. Does it provide a useful model for understanding contemporary habitat fragmentation?

Here I critically evaluate the conceptual utility and limitations of IBT to the study of fragmented ecosystems. I briefly encapsulate the historical background, considering how IBT has helped to shape our thinking about habitat fragmentation over the past four decades. I then describe how fragmentation research has transcended the theory, using findings from a wide variety of terrestrial ecosystems.

2. The Impact of IBT

Prior to MacArthur and Wilson's (1967) seminal book, habitat fragmentation was not high on the radar screen of most ecologists, land managers, and politicians. That all changed with IBT (Powledge, 2003). The theory has helped to revolutionize the thinking of mainstream ecologists about habitat fragmentation and stimulated literally thousands of studies of fragmented and insular ecosystems (Fig. 1). Here I summarize some key conceptual advances linked to IBT, including those from the many investigations it helped to spawn, as well as from the original theory itself.

Perhaps more than anything, IBT opened people's eyes to the importance of vastness for nature conservation (see also Preston, 1960). Big reserves contain more species, lose species more slowly (MacArthur and Wilson, 1967; Burkey, 1995; Sodhi et al., 2005a), and suffer fewer of the deleterious effects of habitat isolation, than do smaller reserves (Terborgh, 1974; Diamond, 1975a; May, 1975; Diamond and May, 1976). The main advantage of vastness, according to IBT, is that individual species can maintain larger populations than in small

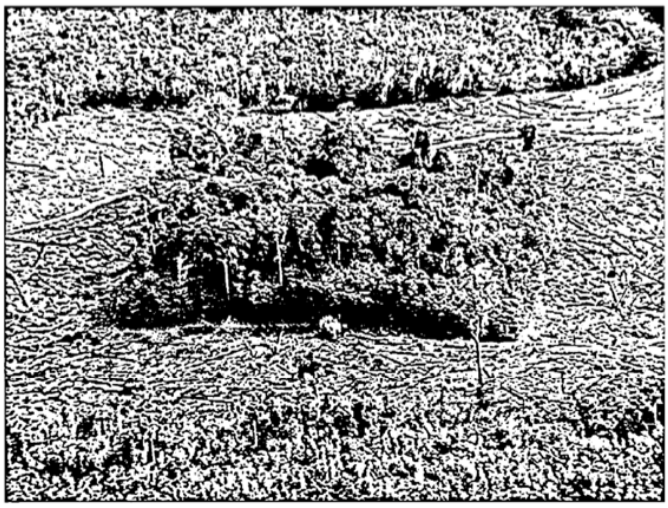


Fig. 1 – An experimentally isolated forest fragment in central Amazonia, part of the Biological Dynamics of Forest Fragments Project (photo by R.O. Bierregaard). This long-term experiment was inspired by a heated debate over the relevance of Island Biogeography Theory to nature conservation.

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

RE:

areas, and that large populations go locally extinct less often than do small populations (Shaffer, 1981). Big reserves should also be better at preserving the full range of successional communities and patch dynamics within ecosystems (Pickett and Thompson, 1978). The presumed importance of area-dependent extinctions has given rise to evocative terms such as 'supersaturation', 'species relaxation', 'faunal collapse' and 'ecosystem decay' that have collectively helped to cement the importance of vastness in the scientific and popular imaginations (e.g. Diamond, 1972; Lovejoy et al., 1984; Quammen, 1997). Indeed, the pendulum of thought has swung so far in favor of vastness that some authors have found it necessary to remind us that small reserves can be important too (Shafer, 1995; Turner and Corlett, 1996).

Of course, IBT helped to refine people's thinking about habitat isolation as well. Isolation is bad, connectivity is good. If a little isolation is a bad thing, then a lot of isolation is even worse. Hence, reserves that are isolated from other areas of habitat by large expanses of degraded, hostile landscape will sustain fewer species of conservation concern than those nearer to intact habitat (Lomolino, 1986; Koh and Sodhi, 2004; Watling and Donnelly, 2006). This occurs for two reasons: weakly isolated reserves are easily colonized by new species, and they receive immigrants whose genetic and demographic contributions can reduce local extinction rates within the reserve (Brown and Kodric-Brown, 1977).

IBT has also spawned a highly dynamic view of fragmented ecosystems. A key prediction of IBT is that insular biota should be inherently dynamic, with species disappearing (from local extinction) and appearing (from colonization) relatively often. If extinction and colonization are largely governed by fragment size and isolation, respectively, then big, isolated fragments should have slower species turnover than do small, weakly isolated fragments. Demonstrating such relationships is a litmus test for IBT (Gilbert, 1980; Abbott, 1983) because other biogeographic phenomena, such as the species–area relationship, can arise for reasons aside from those hypothesized by IBT (for example, higher habitat diversity, rather than lower extinction rates, can cause species richness to increase on larger islands; Boecklen and Gotelli, 1984; Ricklefs and Lovette, 1999). Given its central importance to the theory, it is perhaps surprising that relatively few IBT studies have demonstrated elevated turnover (e.g. Diamond, 1969; Wright, 1985; Honer and Greuter, 1988; Schmigelow et al., 1997; Sodhi et al., 2005a)—and even these have often been controversial (Simberloff, 1976; Diamond and May, 1977; Morrison, 2003). As discussed below, population and community dynamics are often greatly amplified in habitat fragments relative to natural conditions (Laurance, 2002), but a variety of factors aside from those hypothesized by IBT can be responsible.

Habitat fragmentation affects different species in different ways. Some species decline sharply or disappear in fragments (Fig. 2), others remain roughly stable, and yet others increase, sometimes dramatically. Although IBT *sensu stricto* provides little understanding of the biological reasons for such differences (aside from small population size; Ale and Howe, in press), some insights have come from interpreting the slope (z) of species–area relationships in insular communities (Connor and McCoy, 1979; Ricklefs and Lovette, 1999). For instance,

Fig. 2 – Ecological specialists such as the scaled-backed antbird (*Hylophylax poecilonota*), Boyd's forest dragon (*Hypsilurus boydii*), and lemuroid ringtail possum (*Hemibelideus lemuroides*) decline precipitously in fragmented forests (photos by A.M. Dennis, S. Williams, and W.F. Laurance, respectively).

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

species at higher trophic levels (Holt et al., 1999), with lower mobility (Wright, 1981), with greater ecological specialization (Krauss et al., 2003), and with greater taxonomic age (Ricklefs and Cox, 1972; Ricklefs and Bermingham, 2001) generally have steeper slopes, and thus respond more negatively to insularization, than do those with opposite characteristics. Characteristics of fragmented landscapes can also affect species–area slopes (Wright, 1981). For example, slopes are on average steeper for fauna on true islands than terrestrial fragments, presumably because agricultural or urban lands are less hostile to faunal movements than are oceans and lakes (Watling and Donnelly, 2006).

Early proponents of IBT were keen to apply its principles to the design of protected areas, and used the theory to (among other things) advance the notion that a single large reserve was better for ensuring long-term species persistence than were several small reserves of comparable area (Terborgh, 1974; Diamond, 1975a; May, 1975; Wilson and Willis, 1975). This idea, encapsulated in the famous acronym 'SLOSS' (single large or several small reserves), became a remarkably heated controversy, following a pointed attack by Simberloff and Abele (1976a). Although of theoretical interest, the ensuing debate (e.g. Diamond, 1976; Simberloff and Abele, 1976b; Terborgh, 1976; Whitcomb et al., 1976; Abele and Connor, 1979; Higgs and Usher, 1980) had only limited practical relevance for reserve managers (Soulé and Simberloff, 1986; Zimmerman and Bierregaard, 1986; Saunders et al., 1991). Perhaps the most important conclusion was that SLOSS depended on the degree of nestedness exhibited by an ecosystem (the extent to which the biota of small reserves was a proper subset of those in larger reserves; Patterson and Atmar, 1986; Patterson, 1987). The most extinction-prone species are often found only in large reserves, favoring the single large reserve strategy, although small reserves scattered across a region can sustain certain locally endemic species that would otherwise remain unprotected (see Ovaskainen, 2002 and references therein).

Beyond the SLOSS debate, IBT has promoted the wide use of species–area curves for conservation applications (see Rosenzweig, 1995; Lomolino, 2000; Haila, 2002). These include predicting species endangerment (Pimm et al., 1995; Brooks and Balmford, 1996) and local extinctions (Tilman et al., 1994; Newmark, 1996; Magura et al., 2001) in fragmented landscapes, devising general reserve-design principles (Diamond, 1975a; Wilson and Willis, 1975; Faaborg, 1979), and identifying conservation targets for specific habitat types (Desmet and Cowling, 2004). Among the most controversial uses involve projecting global species extinctions, such as from tropical deforestation. Results have varied dramatically, ranging from alarming (Ehrlich and Wilson, 1991; Reid, 1992; Dirzo and Raven, 2003) to far more modest (Wright and Muller-Landau, 2006) projections of future species losses. Such differences arise from the high sensitivity of predictions to uncertainty or errors in species–area slopes (Rosenzweig, 1995; Pereira and Daily, 2006; Ale and Howe, in press), from differing assumptions about species persistence in degraded habitats (Pereira and Daily, 2006; Wright and Muller-Landau, 2006; Laurance, 2007), and from large uncertainties about the geographic distribution of biodiversity. Clearly, the species–area curve is a blunt tool in many contexts.

3. Habitat fragmentation in the real world

By stimulating a broad array of research on insular ecosystems, IBT has helped to teach us much about habitat fragmentation. In a strict sense, however, IBT itself has only narrow relevance to fragmentation because it fails to consider some of the most important phenomena in fragmented landscapes. Here I summarize some key limitations.

3.1. *Nonrandom habitat conversion*

Habitat conversion is a highly nonrandom process. Farmers preferentially clear land in flatter lowland areas (Winter et al., 1987; Dirzo and Garcia, 1992) and in areas with productive, well-drained soils (Chatelain et al., 1996; Smith, 1997). Habitat loss also tends to spread contagiously, such that areas near highways, roads, and towns are cleared sooner than those located further from human settlements. In the Brazilian Amazon, for example, over 90% of all deforestation occurs within 50 km of roads or highways (Laurance et al., 2001; Brandão et al., 2007).

Because of nonrandom clearing, habitat remnants are often a highly biased subset of the original landscape. Remnants frequently persist in steep and dissected areas, on poorer soils, at higher elevations, and on partially inundated lands. In addition, habitat fragments near roads and townships are often older, more isolated, and smaller than those located further afield, where habitat destruction is more recent (Laurance, 1997; Fahrig, 2003). The influence of nonrandom habitat loss on fragmented communities has been little studied, although Seabloom et al. (2002) concluded that species–area curves underestimate the magnitude of species extinctions when habitat destruction is contagious, as is typically the case. Regardless, it is important to recognize that the biota of habitat fragments are likely to have been influenced by nonrandom habitat loss long before the effects of fragmentation per se are manifested.

3.2. *Distinguishing habitat loss and fragmentation effects*

Habitat fragmentation involves two distinct but interrelated processes. First, the total amount of original habitat in the landscape is reduced. Second, the remaining habitat is chopped up into fragments of various sizes and degrees of isolation. Distinguishing the impacts of these two processes on biodiversity is challenging because they generally co-vary. For example, in forested landscapes in which most of the original habitat has been destroyed, the surviving fragments are often small and isolated from other forest areas, whereas the opposite is true in landscapes with little forest loss. Hence, strong declines of biodiversity reported for many fragmented landscapes might actually be largely a consequence of habitat loss, rather than habitat fragmentation per se (Fahrig, 2003).

IBT emphasizes analyses at the individual-fragment scale, but the best way to quantify the relative importance of habitat loss versus fragmentation is to conduct comparative analyses at the landscape scale. In a meta-analysis, Fahrig (2003) concluded that habitat loss typically had much stronger effects on biodiversity than did fragmentation per se, although she emphasized that much is uncertain, especially

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

for tropical forests. Others have tried to distinguish effects of habitat loss and fragmentation, either by experimentally controlling for habitat amount while varying fragmentation (Collins and Barrett, 1997; Caley et al., 2001) or by comparing many different landscapes and extracting indices of fragmentation that are not correlated with the amount of habitat in each landscape (McGarigal and McComb, 1995; Villard et al., 1999). Results have varied, and disentangling the often-confounded effects of habitat loss and fragmentation remains a challenge for those attempting to understand the mechanisms of biodiversity loss in fragmented landscapes.

3.3. *Edge effects*

Edge effects are diverse physical and biological phenomena associated with the abrupt, artificial boundaries of habitat fragments (Fig. 3). They include the proliferation of shade-intolerant vegetation along fragment margins (Ranney et al., 1981; Lovejoy et al., 1986) as well as changes in microclimate and light regimes that affect seedling germination and survival (Ng, 1983; Bruna, 1999). Forest interiors often are bombarded by a 'seed rain' of weedy propagules (Janzen, 1983; Nascimento et al., 2006) and by animals originating from outside habitats (Buechner, 1987). Increased windshear forces near edges can cause elevated rates of tree mortality that alter forest structure and composition (Chen et al., 1992; Laurance et al., 1997, 2000). Abundant generalist predators, competitors, or brood parasites in the vicinity of edges often impact forest birds (Gates and Gysel, 1978; Wilcove, 1985) and mammals (Sievert and Keith, 1985).

Edge effects alter many aspects of the structure, microclimate, dynamics, and species composition of fragmented ecosystems (Lovejoy et al., 1986; Laurance et al., 2002; Lehtinen et al., 2003; Ries et al., 2004; Wirth et al., 2007). Crucially, they are not addressed by IBT, which assumes that biota in fragments are influenced solely by the opposing forces of colonization and extinction. Edge effects may be especially important in fragments of dense forest, where the dark, humid microclimate contrasts starkly with the dry, harsh, windy conditions of surrounding open habitats (Harper et al., 2005).

It can be challenging to discriminate edge and area effects in fragmentation studies. Edge phenomena tend to increase in intensity as fragment size diminishes, creating a confounding intercorrelation between edge and area effects in fragmented landscapes (Laurance and Yensen, 1991). In fact, many putatively 'area-related' species losses in habitat fragments probably have been caused by edge effects (Schonewald-Cox and Bayless, 1986; Temple, 1986; Woodroffe and Ginsberg, 1998) or by a synergism between edge and area effects (Ewers et al., 2007).

Understanding the role of edge effects is important because edge models yield different predictions than does IBT about the effects of fragmentation on ecosystems and biota. For example, unlike IBT, edge-effect models predict major

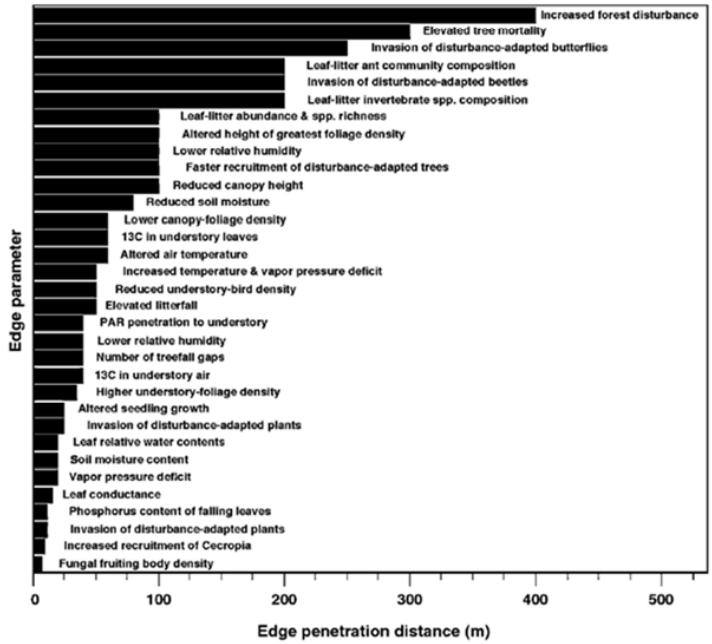


Fig. 3 – Edge effects documented in Amazonian forest fragments, showing the great diversity of edge phenomena and the varying distances they penetrate into forest interiors (after Laurance et al., 2002).

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

ecological changes (1) in irregularly shaped as well as in small fragments, (2) along the margins of even very large fragments, and (3) especially in areas affected by two or more nearby edges (Laurance and Yensen, 1991; Malcolm, 1994; Laurance et al., 2006a). Edge models also provide useful predictions about species responses to fragmentation. For instance, the abundances of forest-interior species should be positively correlated with the unaltered core-areas of fragments (Temple, 1986; Ewers and Didham, 2007), edge specialists should be correlated with the total length of fragment edges, and edge-insensitive species that depend on primary habitat should be correlated with the total areas of fragments (Laurance and Yensen, 1991). IBT yields none of these insights.

3.4. *Matrix effects*

For all its conceptual utility, IBT has had a striking downside for understanding forest fragmentation: it ignores the matrix of modified lands surrounding fragments. Whether surrounded by soy fields, suburbia, water, or secondary forest, all fragments (including isolated nature reserves) are treated equally by IBT. Such fragments are not equivalent, of course—the matrix matters.

The matrix has a major influence on fragment connectivity (Ricketts, 2001). Matrices that differ dramatically in structure and microclimate from the primary habitat tend to be most hostile to native species (Laurance and Bierregaard, 1997; Sodhi et al., 2005b). In the Amazon, forest fragments surrounded by cattle pastures suffer considerably greater species losses than do those surrounded by regrowth forest, and a variety of species—including certain primates, antbirds, obligate flocking birds, and euglossine bees—have been shown to recolonize fragments as young secondary forest regenerates around them (Becker et al., 1991; Stouffer and Bierregaard, 1995; Gilbert and Setz, 2001). Where hunting is pervasive, the matrix can become a population sink for exploited or persecuted species (Newmark, 1996; Woodroffe and Ginsberg, 1998; Brashares et al., 2001). By acting as a selective filter for animal and propagule movements, the matrix has pervasive effects on species composition in fragments.

The matrix can also influence the nature and magnitude of edge effects in fragments. In the Amazon, forest fragments surrounded by young regrowth forest experience less-intensive changes in microclimate (Didham and Lawton, 1999) and have lower edge-related tree mortality (Mesquita et al., 1999) than do similar fragments adjoined by cattle pastures. Edge avoidance by forest-interior birds is also reduced when fragments are adjoined by regrowth forest (Stouffer and Bierregaard, 1995; S.G. Laurance, 2004). Because fragments can receive a heavy seed rain from the nearby matrix, patterns of plant regeneration in forest fragments can be strongly influenced by the species composition of the matrix (Janzen, 1983; Grau, 2004; Nascimento et al., 2006).

3.5. *Correlates of extinction proneness*

Whether on islands or habitat fragments, species can differ enormously in their vulnerability to local extinction: some vanish rapidly, others more slowly, and yet others persist almost indefinitely. Why? Many researchers have attempted to predict why certain species are especially extinction prone in insular habitats (e.g. Terborgh, 1974; Pimm et al., 1989; Laurance, 1991; Henle et al., 2004; Koh et al., 2004).

Importantly, the traits associated with vulnerability may well differ between islands and habitat fragments. Studies of fauna on islands have often emphasized the importance of local rarity or its correlates, such as body size and trophic status, in determining species vulnerability (e.g. Terborgh, 1974; Willis, 1974; Wilcox, 1980; Diamond, 1984). Unlike islands, however, habitat fragments are surrounded by a matrix of modified habitats that permit dispersal or survival for species that can use the matrix, and matrix tolerance and its correlates (such as high dietary specialization) are often identified as key predictors of vulnerability (Fig. 4) (Laurance, 1990, 1991; Gascon et al., 1999; Nupp and Swihart, 2000; Pires et al., 2002; Sekercioglu et al., 2002; Brashares, 2003; Koh et al., 2004; Antongiovanni and Metzger, 2005). On islands, or on other isolates surrounded by completely inhospitable habitat, matrix tolerance is necessarily a nonexistent predictor of extinction proneness, and effects of other predictors, such as rarity and its correlates, are likely to become more apparent.

Hence, as a model for predicting faunal extinctions in habitat fragments, studies of oceanic or land-bridge islands may (1) underestimate the importance of overland vagility and tolerance of modified habitats, and (2) overestimate the significance of factors such as rarity, body size, and trophic status. Insofar as IBT emphasizes true islands, its lessons for understanding species vulnerability in habitat fragments might be weak and even misleading.

3.6. *Community-level changes*

IBT treats species as non-interacting entities, assuming that their responses to fragmentation are governed solely by their

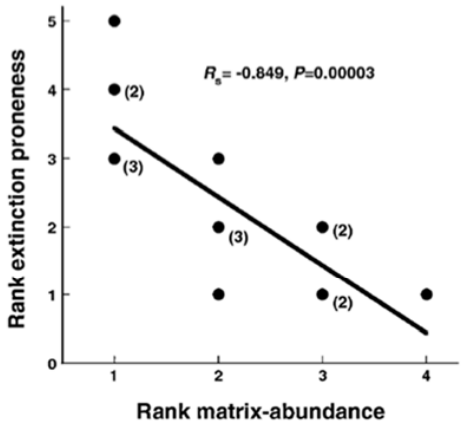


Fig. 4 – Relationship between matrix tolerance and local extinction proneness in 16 mammal species in Australian rainforest fragments (after Laurance, 1991).

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

population size (Harrison and Bruna, 1999; Ale and Howe, in press). In reality, species interact with one another in myriad ways via competition, predation, parasitism, disease, and mutualisms, and distortions in such interactions can markedly affect species survival and community composition in fragments.

For instance, large predators often disappear from habitat fragments and in their absence generalist omnivores, such as raccoons, coatis, opossums, and baboons (Fig. 5), can explode in abundance, a phenomenon termed 'mesopredator release' (Soulé et al., 1988; Terborgh, 1992). Omnivores also invade fragments from surrounding agricultural lands (Gates and Gysel, 1978; Andren and Angelstam, 1988; Paton, 1994; Galetti and Sazima, 2006). When hyperabundant, such omnivores can have important impacts on nesting birds (Crooks and Soulé, 1999; Schmidt, 2003), large-seeded plants (Wright and Duber, 2001), and other species (Dirzo and Miranda, 1991; Laurance, 1997). A related phenomenon is the proliferation in fragments of certain herbivorous insects, such as leaf-cutter ants, in the absence of their predators (Rao, 2000; Terborgh et al., 2001).

Fragmentation can also distort competitive interactions. In the restricted universe of a habitat fragment, interspecific competition may well be intensified because resources such as space, food, and shelter are more limited. 'Checkerboard' distribution patterns, in which closely related, ecologically similar species have nearly mutually exclusive distributions on islands or fragments, are thought to result from such intensified competition (Diamond, 1975b; Fox and Fox, 2000; Laurance, 1997). Ecological changes in fragments such as edge (Fagan et al., 1999) and matrix (Cantrell et al., 1999) effects can favor certain competitors over others and thereby change competitive interactions and species survival.

Species with strong ecological linkages may be especially vulnerable in fragments. For example, the decline of key seed dispersers or pollinators in fragments can reduce reproduction, dispersal, and establishment of dependent plant species (e.g. Aizen and Feinsinger, 1994; Chapman et al., 2003; Cordeiro and Howe, 2003; Wright et al., 2007). In the Amazon, obligate ant-following birds, which accompany marauding swarms of army ants to capture fleeing insects, disappear from forest fragments too small to sustain army-ant colonies (Lovejoy et al., 1986; Stouffer and Bierregaard, 1995). In addition, the decline of peccaries in Amazon fragments has reduced the abundance of frogs that require peccary wallows for breeding (Zimmerman and Bierregaard, 1986).

In these and other ways, habitat fragmentation alters species interactions, with far-reaching impacts on community composition and functioning. Such changes fall entirely outside the scope of IBT.

3.7. *Altered ecosystem processes*

As a prism for understanding habitat fragmentation, IBT is woefully limited: it focuses only on species diversity. But habitat fragmentation has far broader effects on ecosystems,

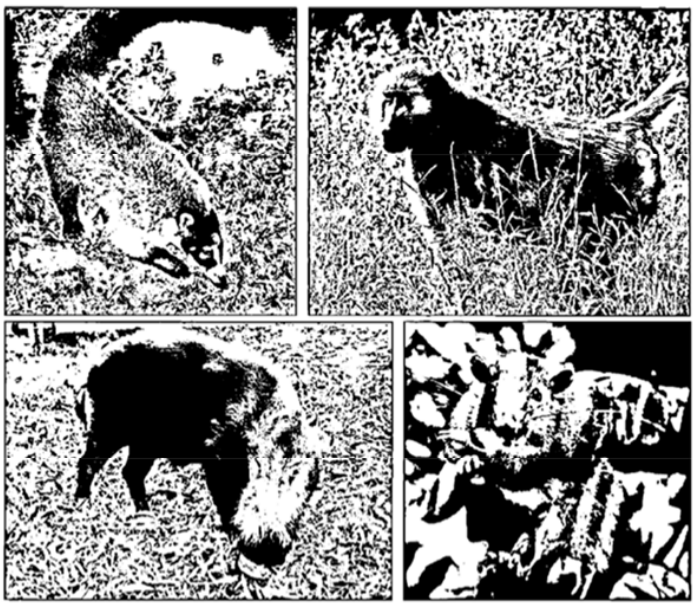


Fig. 5 – Opportunistic omnivores, such as coatis (*Nasua nasua*), chacma baboons (*Papio cynocephalus*), bearded pigs (*Sus barbatus*), and giant white-tailed rats (*Uromys caudimaculatus*), can explode in abundance following the loss of large, regulating predators in fragmented habitats (photos by W.F. Laurance).

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

altering such diverse processes as forest dynamics, nutrient cycling, carbon storage, and forest-climate interactions.

In many forested landscapes, for example, habitat fragmentation leads to sharply elevated tree mortality, because trees near forest edges are particularly vulnerable to wind turbulence and increased desiccation (Chen et al., 1992; Laurance et al., 1997, 1998a; Harper et al., 2005). This fundamentally alters canopy-gap dynamics, forest structure, microclimate (Kapos, 1989; Malcolm, 1998), and the relative abundance of different plant functional groups (Tabarelli et al., 1999; Metzger, 2000; Laurance et al., 2006a, 2006b; Nascimento et al., 2006). Forest carbon storage is also reduced (Fig. 6) because large canopy and emergent trees, which contain a high proportion of forest biomass, are particularly vulnerable to fragmentation (Laurance et al., 2000). As the biomass from the dead trees decomposes, it is converted into greenhouse gases such as carbon dioxide and methane. In fragmented forests worldwide, many millions of tons of atmospheric carbon emissions are released each year by this process (Laurance et al., 1998b).

Fragmentation alters many aspects of the physical environment. Large-scale clearing of native vegetation can cause major changes in water and nutrient cycles, radiation balance, and wind regimes, which in turn affect communities in habitat remnants (Saunders et al., 1991; Laurance, 2004). In western Australia, the removal of most native vegetation for wheat production has reduced evapotranspiration and altered soil water flows. This has increased local flooding, brought the water table with its dissolved salts closer to the soil surface, and caused chronic waterlogging and salinization of the remaining vegetation (Hobbs, 1993). Wind- or waterborne fluxes of agricultural chemicals (fertilizers, herbicides, pesticides) and other pollutants into habitat remnants (Cadenasso et al., 2000; Weathers et al., 2001) can also have long-term effects on ecosystems.

Fragmentation often drastically alters natural fire regimes. In some cases, burning declines sharply because fires are suppressed in the surrounding matrix, leading to long-term changes in the composition and structure of remnant vegetation (Baker, 1994). In other cases, fragmentation promotes burning in ecosystems that are highly vulnerable to fire, such as tropical rainforests (Cochrane et al., 1999; Gascon et al., 2000). In the Amazon, for example, fire frequency rises drastically in fragmented landscapes (Fig. 7) because forest remnants are juxtaposed with frequently burned pastures. These recurring burns have severe effects because the rainforest vegetation is poorly adapted for fire, and forest fragments can literally implode over time from recurring fires (Cochrane and Laurance, 2002, in press).

3.8. *Environmental synergisms*

In the real world, habitat fragments are not merely reduced and isolated; they are also frequently affected by other perturbations that may interact additively or synergistically with fragmentation (Laurance and Cochrane, 2001). Forest fragments in the tropics are often selectively logged, degraded by ground fires, and overhunted—changes that can dramatically alter fragment ecology (Cullen et al., 2000; Peres, 2001; Cochrane and Laurance, 2002; Galetti et al., 2006; Peres and Michalski, 2006). In agricultural and urban areas, acid rain, pesticides and herbicides, hydrological changes, livestock grazing, and pressure from invading species can severely degrade fragments (Myers, 1988; Hobbs and Huenneke, 1992; Abensperg-Traun et al., 1996; Suarez et al., 1998; Cumming, 2002). In coming decades, anthropogenic climate change may emerge as an increasingly important threat to fragmented ecosystems (Travis, 2003; Opdam and Wascher, 2004; Laurance and Curran, 2008), especially if droughts, storms, and other rare weather events increase

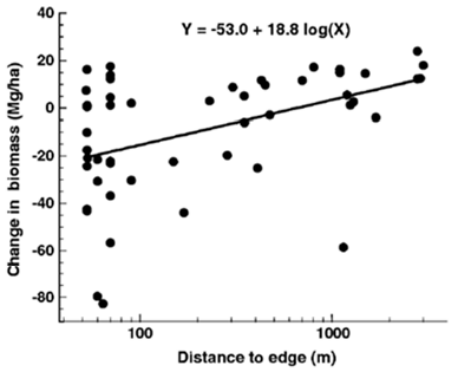


Fig. 6 – Collapse of aboveground biomass in Amazonian forest fragments. Shown is the net change in aboveground tree biomass in 1-ha plots as a function of distance from forest edge, during the first 1–2 decades after forest fragmentation (after Nascimento and Laurance, 2004).

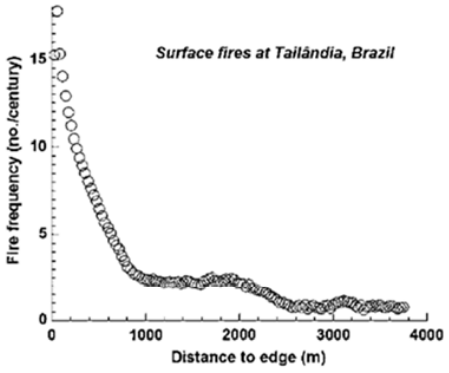


Fig. 7 – Fires can increase dramatically in fragmented forests. Shown is the mean fire frequency (number per century) as a function of distance to forest edge for several hundred forest fragments in eastern Amazonia. Analyses were based on 14 years of satellite observations (adapted from Cochrane and Laurance, 2002).

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

in frequency or severity (Timmerman et al., 1999; Webster et al., 2005).

Thus, forest fragments and their biota are sometimes subjected to a withering array of environmental pressures that may be episodic or chronic in nature. A paradigm like IBT that considers only changes in fragment size and isolation while ignoring other anthropogenic effects (e.g. Curran et al., 1999; Laurance, 2000) is dangerously inadequate for conservation purposes. It is also inadequate from a scientific perspective. A more realistic view of fragmented landscapes is one that explicitly recognizes the potential for interacting environmental changes to amplify and alter the ecological impacts of habitat fragmentation.

3.9. *Elevated dynamics*

Finally, IBT postulates that fragmented ecosystems will be more dynamic than intact habitat, but only because of species relaxation and increased species turnover. In fact, a far wider range of phenomena promotes dynamism in fragmented landscapes, even to the extent that many fragments can be described as 'hyperdynamic' (Laurance, 2002).

Being a small resource base, a habitat fragment is inherently vulnerable to stochastic effects. Species abundances can fluctuate wildly in small communities, especially when immigration is low and disturbances are frequent (Hubbell, 2001; Casagrande and Gatto, 2002). The dynamics of plant and animal populations can be dramatically altered in fragmented habitats in response to edge effects, reduced dispersal, altered disturbance regimes, and changing herbivore or predation pressure (Lidicker, 1973; Karieva, 1987; Quintana-Ascencio and Menges, 1996; Wirth et al., 2007). Fragmented animal communities often pass through unstable transitional states that do not otherwise occur in nature (Terborgh et al., 2001). These can cause serious ecological distortions, such as a collapse of predator and parasite populations and a hyperabundance of herbivores and ecological generalists (Mikkelson, 1993; Didham et al., 1998; Terborgh et al., 2001; Sekercioglu et al., 2002; Feeley and Terborgh, 2006), with cascading impacts on plant communities (Dirzo and Miranda, 1991; Terborgh, 1992; Leigh et al., 1993; Rao et al., 2001; Asquith and Meíja-Chang, 2005; Feeley and Terborgh, 2005). These and other instabilities plague small, dwindling populations in fragments.

As discussed above, habitat fragments are often strongly affected by external vicissitudes and disturbances in the human-dominated lands that surround it. For example, forest species that exploit edge or disturbed habitats often increase dramatically in fragmented landscapes (Margules and Milkovits, 1994; Laurance et al., 2002). As habitat loss proceeds, displaced animals from surrounding degraded lands can flood into remaining habitat fragments, leading to sudden increases in local population densities (Lovejoy et al., 1986; Hagan et al., 1996; Curran et al., 1999). Modified landscapes can be a major source of recurring disturbances, with hunters, livestock, fires, smoke, and large abiotic fluxes penetrating into and destabilizing fragments.

4. Conclusions

IBT is one of the most elegant and important theories in contemporary ecology, towering above thousands of lesser ideas and concepts. The theory provides a conceptual framework for understanding habitat fragmentation that continues to inform researchers today. The avalanche of research stimulated by IBT has dramatically advanced the study of fragmented and insular habitats.

This having been said, the study of fragmented ecosystems has now greatly transcended IBT. With perfect hindsight, the theory seems simplistic to the point of being cartoonish, and fails to address some of the most important phenomena affecting fragmented landscapes. Fragmentation research today has diversified enormously, touching on subdisciplines ranging from landscape ecology to metapopulation dynamics, and from conservation genetics to population viability analysis. Although everyone working in these fields owes some allegiance to the initial insights of IBT, fragmentation research has advanced far beyond the original scope of the theory.

Acknowledgements

I thank J. Losos, R. Ricklefs, R. Ewers, S. Laurance, N. Sodhi, and two anonymous reviewers for many useful comments. This paper is modified and expanded from a book chapter (Laurance, in press) but retains much of the original structure. This is publication number 513 in the technical series of the Biological Dynamics of Forest Fragments Project.

REFERENCES

Abbott, I., 1983. The meaning of z in species/area regressions and the study of species turnover in island biogeography. Oikos 41, 385–390.

Abele, L.G., Connor, E.F., 1979. Application of island biogeography theory to refuge design: making the right decision for the wrong reasons. In: Linn, R.M. (Ed.), Proceedings of the First Conference on Scientific Research in the National Parks. US Department of the Interior, Washington, DC, pp. 89–94.

Abensperg-Traun, M., Smith, G.T., Arnold, G., Steven, D., 1996. The effects of habitat fragmentation and livestock-grazing on animal communities in remnants of gimlet *Eucalyptus salubris* woodland in the Western Australian wheatbelt. I. Arthropods. J. Appl. Ecol. 33, 1281–1301.

Aizen, M.A., Feinsinger, P., 1994. Forest fragmentation, pollination, and plant reproduction in a Chaco dry forest. Ecology 75, 330–351.

Ale, S., Howe, H.F., in press. What do ecological paradigms offer to conservation? Conserv. Biol.

Andren, H., Angelstam, P., 1988. Elevated predation rates as an edge effect in habitat islands: experimental evidence. Ecology 69, 544–547.

Antongiovanni, M., Metzger, J.P., 2005. Influence of matrix habitats on the occurrence of insectivorous bird species in Amazonian forest fragments. Biol. Conserv. 122, 441–451.

Asquith, N.M., Meíja-Chang, M., 2005. Mammals, edge effects, and the loss of tropical forest diversity. Ecology 86, 379–390.

Baker, W.L., 1994. Restoration of landscape structure altered by fire suppression. Conserv. Biol. 8, 763–769.

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

Becker, P., Moure, J.B., Peralta, F.J.A., 1991. More about euglossine bees in Amazonian forest fragments. Biotropica 23, 586–591.

Boecklen, W.J., Gotelli, N., 1984. Island biogeographic theory and conservation practice: species–area or specious–area relationships? Biol. Conserv. 29, 63–80.

Brandão, A.O., Souza, C.M., Ribeiro, J.G., Sales, M., 2007. Desmatamento e estradas não-officias da Amazônia. In: Anais XIII Simpósio Brasiliero de Sensoriamento Remoto, April, pp. 2357–2364.

Brashares, J.S., 2003. Ecological, behavioral, and life-history correlates of mammal extinctions in West Africa. Conserv. Biol. 17, 733–743.

Brashares, J.S., Arcese, P., Sam, M.K., 2001. Human demography and reserve size predict wildlife extinction in West Africa. Proc. Royal Soc. London B 268, 2473–2478.

Brooks, T., Balmford, A., 1996. Atlantic forest extinctions. Nature 380, 115.

Brown, J.H., Kodric-Brown, A., 1977. Turnover rates in insular biogeography: effect of immigration on extinction. Ecology 58, 445–449.

Bruna, E.M., 1999. Seed germination in rainforest fragments. Nature 402, 139.

Buechner, M., 1987. Conservation in insular parks: simulation models of factors affecting the movement of animals across park boundaries. Biol. Conserv. 41, 57–76.

Burkey, T.V., 1995. Extinction rates in archipelagoes: implications for populations in fragmented habitats. Conserv. Biol. 9, 527–541.

Cadenasso, M., Pickett, S., Weathers, K., 2000. Effects of edges and boundaries on the flux of nutrients, detritus, and organisms. In: Polis, G., Power, M. (Eds.), Food Webs at the Landscape Level. University of Chicago Press, Chicago, pp. 128–135.

Caley, M.J., Buckley, K.A., Jones, G.P., 2001. Separating ecological effects of habitat fragmentation, degradation, and loss on coral commensals. Ecology 82, 3435–3448.

Cantrell, R.S., Cosner, C., Fagan, W.F., 1999. Competitive reversals inside ecological reserves: the role of external habitat degradation. J. Math. Biol. 37, 491–533.

Casagrande, R., Gatto, M., 2002. Habitat destruction, environmental catastrophes, and metapopulation extinction. Theor. Popul. Biol. 61, 127–140.

Chapman, C.A., Chapman, L.J., Vulinec, K., Zanne, A., Lawes, M.J., 2003. Fragmentation and alteration of seed dispersal processes: an initial evaluation of dung beetles, seed fate, and seedling diversity. Biotropica 35, 382–393.

Chatelain, C., Gautier, L., Spichiger, R., 1996. A recent history of forest fragmentation in southwestern Ivory Coast. Biodiv. Conserv. 5, 37–53.

Chen, J., Franklin, J.F., Spies, T.A., 1992. Vegetation responses to edge environments in old-growth Douglas-fir forests. Ecol. Appl. 2, 387–396.

Cochrane, M.A., Laurance, W.F., 2002. Fire as a large-scale edge effect in Amazonian forests. J. Trop. Ecol. 18, 311–325.

Cochrane, M.A., Laurance, W.F., in press. Synergisms among fire, land use, and climate change in the Amazon. Ambio.

Cochrane, M.A., Alencar, A., Schulze, M., Souza, C., Nepstad, D., Lefebvre, P., Davidson, E., 1999. Positive feedbacks in the fire dynamic of closed canopy tropical forests. Science 284, 1832–1835.

Collins, R.J., Barrett, G.W., 1997. Effects of habitat fragmentation on meadow vole (*Microtus pennsylvanicus*) population dynamics in experiment landscape patches. Landscape Ecol. 12, 63–76.

Connor, E.R., McCoy, E.D., 1979. The statistics and biology of the species–area relationship. Am. Nat. 113, 791–833.

Cordeiro, N., Howe, H.F., 2003. Forest fragmentation severs mutualism between seed dispersers and an endemic African tree. Proc. Natl. Acad. Sci. USA 100, 14052–14054.

Crooks, K.R., Soulé, M.E., 1999. Mesopredator release and avifaunal extinctions in a fragmented system. Nature 400, 563–566.

Cullen, L., Bodmer, R.E., Padua, C.V., 2000. Effects of hunting in habitat fragments of the Atlantic forest, Brazil. Biol. Conserv. 95, 49–56.

Cumming, G.S., 2002. Habitat shape, species invasions, and reserve design: insights from simple models. Conserv. Ecol. 6, 3. <http://www.consecol.org/vol6/iss1/art3>.

Curran, L.M., Caniago, I., Paoli, G., Astianti, D., Kusneti, M., Leighton, M., Nirarita, C., Haeruman, H., 1999. Impact of El Niño and logging on canopy tree recruitment in Borneo. Science 286, 2184–2188.

Desmet, P., Cowling, R., 2004. Using the species–area relationship to set baseline targets for conservation. Ecol. Soc. 9, 11. <http://www.ecologyandsociety.org/vol9/iss2/art11>.

Diamond, J.M., 1969. Avifaunal equilibria and species turnover rates on the Channel Islands of California. Proc. Natl. Acad. Sci. USA 64, 57–63.

Diamond, J.M., 1972. Biogeographic kinetics: estimation of relaxation times for avifaunas of southwest Pacific islands. Proc. Natl. Acad. Sci. USA 69, 3199–3203.

Diamond, J.M., 1975a. The island dilemma: lessons of modern biogeographic studies for the design of natural reserves. Biol. Conserv. 7, 129–146.

Diamond, J.M., 1975b. Assembly of species communities. In: Cody, M.L., Diamond, J.M. (Eds.), Ecology and Evolution of Communities. Harvard University Press, Cambridge, Massachusetts, pp. 342–444.

Diamond, J.M., 1976. Island biogeography and conservation: strategy and limitations. Science 193, 1027–1029.

Diamond, J.M., 1984. "Normal" extinctions of isolated populations. In: Nitecki, M.H. (Ed.), Extinctions. University of Chicago Press, Chicago, pp. 191–246.

Diamond, J.M., May, R.M., 1976. Island biogeography and the design of natural reserves. In: May, R.M. (Ed.), Theoretical Ecology: Principles and Applications. Blackwell Scientific, Oxford, pp. 163–186.

Diamond, J.M., May, R.M., 1977. Species turnover rates on islands: dependence on census interval. Science 197, 266–270.

Didham, R.K., Lawton, J.H., 1999. Edge structure determines the magnitude of changes in microclimate and vegetation structure in tropical forest fragments. Biotropica 31, 17–30.

Didham, R.K., Lawton, J.H., Hammond, P.M., Eggleton, P., 1998. Trophic structure stability and extinction dynamics of beetles (Coleoptera) in tropical forest fragments. Philos. Trans. Royal Soc. London B 353, 437–451.

Dirzo, R., Garcia, M.C., 1992. Rates of deforestation in Los Tuxtlas, a neotropical area in southern Mexico. Conserv. Biol. 6, 84–90.

Dirzo, R., Miranda, A., 1991. Altered patterns of herbivory and diversity in the forest understory: a case study of the possible consequences of contemporary defaunation. In: Price, P.W., Lewinsohn, T., Fernandes, G., Benson, W. (Eds.), Plant–Animal Interactions: Evolutionary Ecology in Tropical and Temperate Regions. John Wiley & Sons, New York, pp. 273–287.

Dirzo, R., Raven, P.H., 2003. Global state of biodiversity and loss. Ann. Rev. Environ. Resour. 28, 137–167.

Ehrlich, P.R., Wilson, E.O., 1991. Biodiversity studies: science and policy. Science 253, 758–762.

Ewers, R.M., Didham, R.K., 2007. The effect of fragment shape and species' sensitivity to habitat edges on animal population size. Conserv. Biol. 21, 926–936.

Ewers, R.M., Thorpe, S., Didham, R.K., 2007. Synergistic interactions between edge and area effects in a heavily fragmented landscape. Ecology 88, 96–106.

Faaborg, J., 1979. Qualitative patterns of avian extinction on neotropical land-bridge islands: lessons for conservation. J. Appl. Ecol. 16, 99–107.

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

Fagan, W.F., Cantrell, R.S., Cosner, C., 1999. How habitat edges change species interactions. Am. Nat. 153, 165–182.
Fahrig, L., 2003. Effects of habitat fragmentation on biodiversity. Ann. Rev. Ecol. Syst. 34, 487–515.
Feeley, K.J., Terborgh, J.W., 2005. Elevated densities of herbivores (*Alouatta seniculus*) affect soil nutrient concentrations and tree growth on islands in Lago Guri, Venezuela. Ecology 86, 116–124.
Feeley, K.J., Terborgh, J.W., 2006. Habitat fragmentation and effects of herbivore (howler monkey) abundances on bird species richness. Ecology 87, 144–150.
Fox, B.J., Fox, M.D., 2000. Factors determining mammal species richness on habitat islands and isolates: habitat diversity, disturbance, species interactions and guild assembly rules. Global Ecol. Biogeogr. 9, 19–37.
Galetti, M., Sazima, I., 2006. Impact of feral dogs in an urban Atlantic forest fragment in southeastern Brazil. Natur. Conserv. 4, 146–151.
Galetti, M., Donatti, C.I., Pires, A.S., Guimarães, P.R., Jordano, P., 2006. Seed survival and dispersal of an endemic Atlantic forest palm: the combined effects of defaunation and forest fragmentation. Bot. J. Linn. Soc. 151, 141–149.
Gascon, C., Lovejoy, T.E., Bierregaard, R.O., Malcolm, J.R., Stouffer, P., Vasconcelos, H., Laurance, W.F., Zimmerman, B., Tocher, M., Borges, S., 1999. Matrix habitat and species persistence in tropical forest remnants. Biol. Conserv. 91, 223–229.
Gascon, C., Williamson, G.B., Fonseca, G., 2000. Receding edges and vanishing reserves. Science 288, 1356–1358.
Gates, J.E., Gysel, L.W., 1978. Avian nest dispersion and fledgling outcome in field-forest edges. Ecology 59, 871–883.
Gilbert, F.S., 1980. The equilibrium theory of island biogeography, fact or fiction? J. Biogeogr. 7, 209–235.
Gilbert, K.A., Setz, E., 2001. Primates in a fragmented landscape: six species in central Amazonia. In: Bierregaard, R.O., Gascon, C., Lovejoy, T.E., Mesquita, R. (Eds.), Lessons from Amazonia: Ecology and Conservation of a Fragmented Forest. Yale University Press, New Haven, Connecticut, pp. 262–270.
Grau, H.R., 2004. Landscape context and local-scale environment influence regeneration of pioneer tree species in treefall gaps. Biotropica 36, 52–59.
Hagan, J.M., Vander, H., Matthew, W., McKinley, P., 1996. The early development of forest fragmentation effects on birds. Conserv. Biol. 10, 188–202.
Haila, Y., 2002. A conceptual genealogy of fragmentation research: from island biogeography to landscape ecology. Ecol. Appl. 12, 321–334.
Harper, K.A., Macdonald, S.E., Burton, P.J., Chen, J., Brosofske, K.D., Saunders, S.C., Euskirchen, E.S., Roberts, D., Jaiteh, M.S., Esseen, P.-A., 2005. Edge influence on forest structure and composition in fragmented landscapes. Conserv. Biol. 19, 768–782.
Harrison, S., Bruna, E., 1999. Habitat fragmentation and large-scale conservation: what do we know for sure? Ecography 22, 225–232.
Heaney, L.R., 2000. Dynamic disequilibrium: a long-term, large-scale perspective on the equilibrium model of island biogeography. Global Ecol. Biogeogr. 9, 59–74.
Henle, K., Davies, K.F., Kleyer, M., Margules, C., Settele, J., 2004. Predictors of species sensitivity to fragmentation. Biodiv. Conserv. 13, 207–251.
Higgs, A.J., Usher, M.B., 1980. Should nature reserves be large or small? Nature 285, 568–569.
Hobbs, R.J., 1993. Effects of landscape fragmentation on ecosystem processes in the Western Australian wheatbelt. Biol. Conserv. 64, 193–201.
Hobbs, R.J., Huenneke, L.F., 1992. Disturbance, diversity, and invasion: implications for conservation. Conserv. Biol. 6, 324–337.
Holt, R.D., Lawton, J.H., Polis, G., Martinez, N.D., 1999. Trophic rank and the species–area relationship. Ecology 80, 1495–1504.
Honer, D., Greuter, W., 1988. Plant population dynamics and species turnover on small islands near Karpathos (South Aegean, Greece). Vegetatio 77, 129–137.
Hubbell, S.P., 2001. The Unified Neutral Theory of Biodiversity and Biogeography. Princeton University Press, Princeton, New Jersey.
Janzen, D.H., 1968. Host plants as islands in evolutionary and contemporary time. Am. Nat. 102, 592–595.
Janzen, D.H., 1983. No park is an island: increase in interference from outside as park size decreases. Oikos 41, 402–410.
Kapos, V., 1989. Effects of isolation on the water status of forest patches in the Brazilian Amazon. J. Trop. Ecol. 5, 173–185.
Karieva, P., 1987. Habitat fragmentation and the stability of predator-prey interactions. Nature 326, 388–390.
Koh, L.P., Sodhi, N.S., 2004. Importance of reserves, fragments, and parks for butterfly conservation in a tropical urban landscape. Ecol. Appl. 14, 1695–1708.
Koh, L.P., Sodhi, N.S., Brook, B.W., 2004. Ecological correlates of extinction proneness in tropical butterflies. Conserv. Biol. 18, 1571–1578.
Krauss, J., Stefan-Dewenter, I., Tscharntke, T., 2003. Local species immigration, extinction, and turnover of butterflies in relation to habitat area and habitat isolation. Oecologia 137, 591–602.
Laurance, S.G., 2004. Responses of understory rainforest birds to road edges in central Amazonia. Ecol. Appl. 14, 1344–1357.
Laurance, W.F., 1990. Comparative responses of five arboreal marsupials to tropical forest fragmentation. J. Mammal. 71, 641453.
Laurance, W.F., 1991. Ecological correlates of extinction processes in Australian tropical rainforest mammals. Conserv. Biol. 5, 79–89.
Laurance, W.F., 1997. Responses of mammals to rainforest fragmentation in tropical Queensland: a review and synthesis. Wildlife Res. 24, 603–612.
Laurance, W.F., 2000. Do edge effects occur over large spatial scales? Trends Ecol. Evol. 15, 134–135.
Laurance, W.F., 2002. Hyperdynamism in fragmented habitats. J. Veg. Sci. 13, 595–602.
Laurance, W.F., 2004. Forest–climate interactions in fragmented tropical landscapes. Philos. Trans. Royal Soc. B 359, 345–352.
Laurance, W.F., 2007. Have we overstated the tropical biodiversity crisis? Trends Ecol. Evol. 22, 65–70.
Laurance, W.F., in press. Beyond island biogeography theory: understanding habitat fragmentation in the real world. In: Losos, J.B., Ricklefs, R.E. (Eds.), The Theory of Island Biogeography at 40: Impacts and Prospects. Princeton University Press, Princeton, New Jersey.
Laurance, W.F., Bierregaard, R.O. (Eds.), 1997. Tropical Forest Remnants: Ecology, Management, and Conservation of Fragmented Communities. University of Chicago Press, Chicago.
Laurance, W.F., Cochrane, M.A., 2001. Synergistic effects in fragmented landscapes. Conserv. Biol. 15, 1488–1489.
Laurance, W.F., Curran, T.J., 2008. Impacts of wind disturbance on fragmented tropical forests: a review and synthesis. Austral. Ecol. 33, 399–408.
Laurance, W.F., Yensen, E., 1991. Predicting the impacts of edge effects in fragmented habitats. Biol. Conserv. 55, 77–92.
Laurance, W.F., Laurance, S.G., Ferreira, L., Rankin-de Merona, J., Gascon, C., Lovejoy, T.E., 1997. Biomass collapse in Amazonian forest fragments. Science 278, 1117–1118.
Laurance, W.F., Ferreira, L., Rankin-de Merona, J., Laurance, S.G., 1998a. Rain forest fragmentation and the dynamics of Amazonian tree communities. Ecology 79, 2032–2040.

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

Laurance, W.F., Laurance, S.G., Delamonica, P., 1998b. Tropical forest fragmentation and greenhouse gas emissions. For. Ecol. Manage. 110, 173–180.

Laurance, W.F., Delamonica, P., Laurance, S.G., Vasconcelos, H., Lovejoy, T.E., 2000. Rainforest fragmentation kills big trees. Nature 404, 836.

Laurance, W.F., Cochrane, M.A., Bergen, S., Fearnside, P.M., Delamonica, P., Barber, C., D'Angelo, S., Fernandes, T., 2001. The future of the Brazilian Amazon. Science 291, 438–439.

Laurance, W.F., Lovejoy, T.E., Vasconcelos, H., Bruna, E., Didham, R., Stouffer, P., Gascon, C., Bierregaard, R.O., Laurance, S.G., Sampaio, E., 2002. Ecosystem decay of Amazonian forest fragments: a 22-year investigation. Conserv. Biol. 16, 605–618.

Laurance, W.F., Nascimento, H., Laurance, S.G., Andrade, A., Fearnside, P.M., Ribeiro, J., 2006a. Rain forest fragmentation and the proliferation of successional trees. Ecology 87, 469–482.

Laurance, W.F., Nascimento, H., Laurance, S.G., Andrade, A., Ribeiro, J., Giraldo, J., Lovejoy, T.E., Condit, R., Chave, J., D'Angelo, S., 2006b. Rapid decay of tree-community composition in Amazonian forest fragments. Proc. Natl. Acad. Sci. USA 103, 19010–19014.

Lehtinen, R.M., Ramanamanjato, J., Raveloarison, J.G., 2003. Edge effects and extinction proneness in a herpetofauna from Madagascar. Biodiv. Conserv. 12, 1357–1370.

Leigh Jr., E.G., Wright, S.J., Herre, E., Putz, F.E., 1993. The decline of tree diversity on newly isolated tropical islands: a test of a null hypothesis and some implications. Evol. Ecol. 7, 76–102.

Lidicker Jr., W.Z., 1973. Regulation of numbers in an island population of the California vole, a problem in community dynamics. Ecol. Monogr. 43, 271–302.

Lomolino, M.V., 1986. Mammalian community structure on islands: immigration, extinction and interactive effects. Biol. J. Linn. Soc. 28, 1–21.

Lomolino, M.V., 2000. Ecology's most general, yet Protean pattern: the species–area relationship. J. Biogeogr. 27, 17–26.

Losos, J.B., 1996. Ecological and evolutionary determinants of the species–area relation in Caribbean anoline lizards. Philos. Trans. Royal Soc. B 351, 847–854.

Lovejoy, T.E., Rankin, J., Bierregaard, R.O., Brown, K., Emmons, L., Van der Voort, M., 1984. Ecosystem decay of Amazon forest fragments. In: Nitecki, M.H. (Ed.), Extinctions. University of Chicago Press, Chicago, pp. 295–325.

Lovejoy, T.E., Bierregaard, R.O., Rylands, A., Malcolm, J., Quintela, C., Harper, L., Brown, K., Powell, A., Powell, G., Schubart, H., Hays, M., 1986. Edge and other effects of isolation on Amazon forest fragments. In: Soulé, M.E. (Ed.), Conservation Biology: The Science of Scarcity and Diversity. Sinauer, Sunderland, Massachusetts, pp. 257–285.

MacArthur, R.H., Wilson, E.O., 1963. An equilibrium theory of insular zoogeography. Evolution 17, 373–387.

MacArthur, R.H., Wilson, E.O., 1967. The Theory of Island Biogeography. Princeton University Press, Princeton, New Jersey.

Magura, T., Kodobocz, V., Tothmeresz, B., 2001. Effects of habitat fragmentation on carabids in forest patches. J. Biogeogr. 28, 129–138.

Malcolm, J.R., 1994. Edge effects in central Amazonian forest fragments. Ecology 75, 2438–2445.

Malcolm, J.R., 1998. A model of conductive heat flow in forest edges and fragmented landscapes. Clim. Change 39, 487–502.

Margules, C.R., Milkovits, G.A., 1994. Contrasting effects of habitat fragmentation on the scorpion *Cercophonius squama* and an amphipod. Ecology 75, 2033–2042.

May, R.M., 1975. Island biogeography and the design of wildlife preserves. Nature 254, 177–178.

McGarigal, K., McComb, W.C., 1995. Relationships between landscape structure and breeding birds in the Oregon coast range. Ecol. Monogr. 65, 235–260.

Mesquita, R., Delamônica, P., Laurance, W.F., 1999. Effects of surrounding vegetation on edge-related tree mortality in Amazonian forest fragments. Biol. Conserv. 91, 129–134.

Metzger, J.P., 2000. Tree functional group richness and landscape structure in a Brazilian tropical fragmented landscape. Ecol. Appl. 10, 1147–1161.

Mikkelson, G.M., 1993. How do food webs fall apart? A study of changes in trophic structure during relaxation on habitat fragments. Oikos 67, 539–547.

Morrison, L.W., 2003. Plant species persistence and turnover on small Bahamian islands. Oecologia 136, 51–62.

Myers, N., 1988. Synergistic interactions and environment. BioScience 39, 506.

Nascimento, H., Laurance, W.F., 2004. Biomass dynamics in Amazonian forest fragments. Ecol. Appl. 14, S127–S138.

Nascimento, H., Andrade, A., Camargo, J., Laurance, W.F., Laurance, S.G., Ribeiro, J., 2006. Effects of the surrounding matrix on tree recruitment in Amazonian forest fragments. Conserv. Biol. 20, 853–860.

Newmark, W.D., 1996. Insularization of Tanzanian parks and the local extinction of large mammals. Conserv. Biol. 10, 1549–1556.

Ng, F.S.P., 1983. Ecological principles of tropical lowland rain forest conservation. In: Sutton, S.L., Whitmore, T.C., Chadwick, A.C. (Eds.), Tropical Rain Forest: Ecology and Management. Blackwell, Oxford, UK, pp. 359–376.

Nupp, T.E., Swihart, R.K., 2000. Landscape-level correlates of small mammal assemblages in forest fragments surrounded by farmland. J. Mammal. 81, 512–526.

Opdam, P., Wascher, D., 2004. Climate change meets habitat fragmentation: linking landscape and biogeographical scale levels in research and conservation. Biol. Conserv. 117, 285–297.

Ovaskainen, O., 2002. Long-term persistence of species and the SLOSS problem. J. Theor. Biol. 218, 419–433.

Paton, P.W.C., 1994. The effect of edge on avian nest success: how strong is the evidence? Conserv. Biol. 8, 17–26.

Patterson, B.D., 1987. The principle of nested subsets and its implications for biological conservation. Conserv. Biol. 1, 323–334.

Patterson, B.D., Atmar, U., 1986. Nested subsets and the structure of insular mammalian faunas and archipelagoes. Biol. J. Linn. Soc. 28, 65–82.

Pereira, M.P., Daily, G.C., 2006. Modeling biodiversity dynamics in countryside landscapes. Ecology 87, 1877–1885.

Peres, C.A., 2001. Synergistic effects of subsistence hunting and forest fragmentation on Amazonian forest vertebrates. Conserv. Biol. 15, 1490–1505.

Peres, C.A., Michalski, F., 2006. Synergistic effects of habitat disturbance and hunting in Amazonian forest fragments. In: Laurance, W.F., Peres, C.A. (Eds.), Emerging Threats to Tropical Forests. University of Chicago Press, Chicago, pp. 105–127.

Pickett, S.T.A., Thompson, J.N., 1978. Patch dynamics and the design of nature reserves. Biol. Conserv. 13, 27–37.

Pimm, S.L., Jones, H.L., Diamond, J.M., 1989. On the risk of extinction. Am. Nat. 132, 757–785.

Pimm, S.L., Russell, G.J., Gittleman, J., Brooks, T.M., 1995. The future of biodiversity. Science 269, 347–350.

Pires, A.S., Lira, P., Fernandez, F., Schittini, G., Oliveira, L., 2002. Frequency of movements of small mammals among Atlantic coastal forest fragments in Brazil. Biol. Conserv. 108, 229–237.

Powledge, F., 2003. Island biogeography's lasting impact. BioScience 53, 1032–1038.

Preston, F.W., 1960. Time and space and the variation of species. Ecology 41, 611–627.

Quammen, D., 1997. The Song of the Dodo: Island Biogeography in an Age of Extinctions. Scribner, New York.

Quintana-Ascencio, P.F., Menges, E.S., 1996. Inferring metapopulation dynamics from patch-level incidence of Florida scrub plants. Conserv. Biol. 10, 1210–1219.

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

Ranney, J.W., Bruner, M., Levenson, J., 1981. The importance of edge in the structure and dynamics of forest islands. In: Burgess, R., Sharpe, D. (Eds.), Forest Island Dynamics in Man-dominated Landscapes. Springer-Verlag, New York, pp. 67–95.

Rao, M., 2000. Variation in leaf-cutter ant (*Atta* sp.) densities in forest isolates: the potential role of predation. J. Trop. Ecol. 16, 209–225.

Rao, M., Terborgh, J., Nuñez, P., 2001. Increased herbivory in forest isolates: implications for plant community structure and composition. Conserv. Biol. 15, 624–633.

Reid, W.V., 1992. How many species will there be? In: Whitmore, T.C., Sayer, J.A. (Eds.), Tropical Deforestation and Species Extinction. Chapman & Hall, London, UK, pp. 53–73.

Ries, L., Fletcher, R.J.J., Battin, J., Sisk, T.D., 2004. Ecological responses to habitat edges: mechanisms, models and variability explained. Ann. Rev. Ecol. Evol. Syst. 35, 491–522.

Ricketts, T.H., 2001. The matrix matters: effective isolation in fragmented landscapes. Am. Nat. 158, 87–99.

Ricklefs, R.E., Bermingham, E., 2001. Nonequilibrium diversity dynamics of the lesser Antillean avifauna. Science 294, 1522–1524.

Ricklefs, R.E., Cox, G.W., 1972. Taxon cycles in the West Indian avifauna. Am. Nat. 106, 195–219.

Ricklefs, R.E., Lovette, I.J., 1999. The roles of island area per se and habitat diversity in the species–area relationships of four lesser Antillean faunal groups. J. Anim. Ecol. 68, 1142–1160.

Rosenzweig, M., 1995. Species Diversity in Space and Time. Cambridge University Press, Cambridge, UK.

Saunders, D.A., Hobbs, R.J., Margules, C.R., 1991. Biological consequences of ecosystem fragmentation: a review. Conserv. Biol. 5, 18–32.

Schmidt, K.A., 2003. Nest predation and population declines in Illinois songbirds: a case for mesopredator effects. Conserv. Biol. 17, 1141–1150.

Schmigelow, F.K.A., Machtans, C., Hannon, S.J., 1997. Are boreal birds resilient to forest fragmentation? An experimental study of short-term community responses. Ecology 78, 1914–1932.

Schonewald-Cox, C.M., Bayless, J.W., 1986. The boundary model: a geographical analysis of design and conservation of nature reserves. Biol. Conserv. 38, 305–322.

Seabloom, E.W., Dobson, A.P., Stoms, D.M., 2002. Extinction rates under nonrandom patterns of habitat loss. Proc. Natl. Acad. Sci. USA 99, 1129–11234.

Sekercioglu, C.H., Ehrlich, P.R., Daily, G.C., Aygen, D., Goehring, D., Figeroa-Sandi, R., 2002. Disappearance of insectivorous birds from tropical forest fragments. Proc. Natl. Acad. Sci. USA 99, 263–267.

Shafer, C.L., 1995. Values and shortcomings of small reserves. BioScience 45, 80–88.

Shaffer, M.L., 1981. Minimum population sizes for species conservation. BioScience 31, 131–134.

Sievert, P.R., Keith, L., 1985. Survival of snowshoe hares at a geographic range boundary. J. Wildlife Manage. 49, 854–866.

Simberloff, D.S., 1976. Species turnover and equilibrium island biogeography. Science 194, 572–578.

Simberloff, D.S., Abele, L.G., 1976a. Island biogeography theory and conservation practice. Science 191, 285–286.

Simberloff, D.S., Abele, L.G., 1976b. Island biogeography and conservation: strategy and limitations. Science 193, 1032.

Smith, A.P., 1997. Deforestation, fragmentation, and reserve design in western Madagascar. In: Laurance, W.F., Bierregaard, R.O. (Eds.), Tropical Forest Remnants: Ecology, Management, and Conservation of Fragmented Communities. University of Chicago Press, Chicago, pp. 415–441.

Sodhi, N.S., Lee, T.M., Koh, L.P., Dunn, R.R., 2005a. A century of avifaunal turnover in a small tropical rainforest fragment. Anim. Conserv. 8, 217–222.

Sodhi, N.S., Koh, L.P., Prawiradilaga, D.M., Tinulele, D.I., Dargano, I., Putra, D., Tan, H., 2005b. Land use and conservation value for forest birds in Central Sulawesi (Indonesia). Biol. Conserv. 122, 547–558.

Soulé, M.E., Simberloff, D.S., 1986. What do genetics and ecology tell us about the design of nature reserves? Biol. Conserv. 35, 19–40.

Soulé, M.E., Bolger, D.T., Alberts, A.C., Sauvajot, R., Wright, J., Sorice, M., Hill, S., 1988. Reconstructed dynamics of rapid extinctions of chaparral-requiring birds in urban habitat islands. Conserv. Biol. 2, 75–92.

Stouffer, P.C., Bierregaard, R.O., 1995. Use of Amazonian forest fragments by understory insectivorous birds. Ecology 76, 2429–2445.

Suarez, A.V., Bolger, D.T., Case, T.J., 1998. The effects of fragmentation and invasion on the native ant community in coastal southern California. Ecology 79, 2041–2056.

Tabarelli, M., Mantovani, W., Peres, C.A., 1999. Effects of habitat fragmentation on plant guild structure in the montane Atlantic forest of southeastern Brazil. Biol. Conserv. 91, 119–128.

Temple, S.A., 1986. Predicting impacts of habitat fragmentation on forest birds: a comparison of two models. In: Verner, J., Morrison, M., Ralph, C. (Eds.), Wildlife 2000: Modeling Habitat Relationships of Terrestrial Vertebrates. University of Wisconsin Press, Madison, pp. 301–304.

Terborgh, J., 1974. Faunal equilibria and the design of wildlife preserves. In: Golley, F.B., Medina, E. (Eds.), Tropical Ecological Systems. Springer-Verlag, New York, pp. 369–380.

Terborgh, J., 1976. Island biogeography and conservation: strategy and limitations. Science 193, 1029–1030.

Terborgh, J., 1992. Maintenance of diversity in tropical forests. Biotropica 24, 283–292.

Terborgh, J., Lopez, L., Nuñez, V.P., Rao, M., Shahabuddin, G., Orihuela, G., Riveros, M., Ascanio, R., Adler, G., Lambert, T., Balbas, L., 2001. Ecological meltdown in predator-free forest fragments. Science 294, 1923–1926.

Tilman, D., May, R., Lehman, C., Nowak, M., 1994. Habitat destruction and the extinction debt. Nature 371, 65–66.

Timmerman, A., Oberhuber, J., Bacher, A., Esch, M., Latif, M., Roeckner, E., 1999. Increased El Niño frequency in a climate model forced by future greenhouse warming. Nature 398, 694–697.

Travis, J.M.J., 2003. Climate change and habitat destruction: a deadly anthropogenic cocktail. Proc. Royal Soc. London B 270, 467–473.

Turner, I.M., Corlett, R.T., 1996. The conservation value of small, isolated fragments of lowland tropical rain forest. Trends Ecol. Evol. 11, 330–333.

Villard, M.-A., Trzcinski, M., Merriam, G., 1999. Fragmentation effects on forest birds: relative influence of woodland cover and configuration on landscape occupancy. Conserv. Biol. 13, 774–783.

Watling, J.I., Donnelly, M.A., 2006. Fragments as islands: a synthesis of faunal responses to habitat patchiness. Conserv. Biol. 20, 1016–1025.

Weathers, K., Cadenasso, M., Pickett, S.T.A., 2001. Forest edges as nutrient and pollutant concentrators: potential synergisms between fragmentation, forest canopies, and the atmosphere. Conserv. Biol. 15, 1506–1514.

Webster, P.J., Holland, G.J., Curry, J.A., Chang, H.-R., 2005. Changes in tropical cyclone number, duration, and intensity in a warming environment. Science 309, 1844–1846.

Whitcomb, R.F., Lynch, J.F., Opler, P., Robbins, C.S., 1976. Island biogeography and conservation: strategy and limitations. Science 193, 1030–1032.

Wilcove, D.S., 1985. Nest predation in forest tracts and the decline of migratory songbirds. Ecology 66, 1212–1214.

Please cite this article in press as: Laurance, W.F., Theory meets reality: How habitat fragmentation research ..., Biol. Conserv. (2008), doi:10.1016/j.biocon.2008.05.011

Wilcox, B.A., 1980. Insular ecology and conservation. In: Soulé, M.E., Wilcox, B.A. (Eds.), Conservation Biology: An Evolutionary-Ecological Perspective. Sinauer Associates, Sunderland, Massachusetts, pp. 95–117.

Willis, E.O., 1974. Populations and local extinctions of birds on Barro Colorado Island, Panama. Ecol. Monogr. 441, 53–169.

Wilson, E.O., Willis, E.O., 1975. Applied biogeography. In: Cody, M.L., Diamond, J.M. (Eds.), Ecology and Evolution of Communities. Harvard University Press, Cambridge, Massachusetts, pp. 522–534.

Winter, J.W., Bell, F., Pahl, L., Atherton, R., 1987. Rainforest clearing in northeastern Australia. Proc. Royal Soc. Queensland 98, 41–57.

Wirth, R., Meyer, S.T., Almeida, W.R., Araújo, M., Barbosa, V., Leal, I.R., 2007. Increasing densities of leaf-cutting ants with proximity to the edge in a Brazilian Atlantic forest. J. Trop. Ecol. 23, 501–505.

Woodroffe, R., Ginsberg, J.R., 1998. Edge effects and the extinction of populations inside protected areas. Science 280, 2126–2128.

Wright, S.J., 1981. Intra-archipelago vertebrate distributions: the slope of the species–area relation. Am. Nat. 118, 726–748.

Wright, S.J., 1985. How isolation affects rates of turnover of species on islands. Oikos 44, 331–340.

Wright, S.J., Duber, H.C., 2001. Poachers and forest fragmentation alter seed dispersal, seed survival, and seedling recruitment in the palm *Attalea butyraceae*, with implications for tropical tree diversity. Biotropica 33, 583–595.

Wright, S.J., Muller-Landau, H.C., 2006. The future of tropical forest species. Biotropica 38, 287–301.

Wright, S.J., Stoner, K.E., Beckman, N., Corlett, R.T., Dirzo, R., Muller-Landau, H.C., Nuñez-Iturri, G., Peres, C.A., Wang, B.C., 2007. The plight of large animals in tropical forests and the consequences for plant regeneration. Biotropica 39, 289–291.

Zimmerman, B.L., Bierregaard, R.O., 1986. Relevance of the equilibrium theory of island biogeography and species–area relations to conservation with a case from Amazonia. J. Biogeogr. 13, 133–143.

RE: 2020 Advance Conservation Element
DATE: 9/19/2019
FROM: Richard Brownscombe

"If you use the total acreage of all natural areas in Fort Lauderdale as identified by Broward County on the County GIS map as "protected natural areas", it currently totals about 150 acres. The problem is that all 14 natural areas (identified by the County GIS) are not actually protected, so step one is to do an inventory and assessment and then actually protect them, so that subsequent administrators and Commissions cannot develop them (build on them or put them to primarily human use). So Fort Lauderdale could have 150 acres of protected natural areas almost immediately, just by protecting these 14 natural areas. Step two is to identify 72 additional acres (222 acres minus 150 acres equals 72 acres) that should be protected and managed as natural areas. For example, certain areas within recreation parks (long a border or in a wetland area or as a nature trail or whatever) could be identified and protected for nature, that is, as natural areas. Other examples might be the beach fronts adjacent Bonnet House and Hugh Taylor Birch that are being managed as natural areas. Some of the climate hardening and sea level rise objectives might be achieved by restoring certain beach areas with mangrove natural areas. Coontie Hatchee Park could easily be restored as a pineland forest habitat by adding the right shrub species along the fences and restoring about a dozen wildflower species beneath the Slash Pines (without changing the trail, parking lot, or public use of the park), adding yet another natural area and improving the enjoyment of the park. City-owned lots might be identified for future restoration as natural areas. Altogether, the short-term goal is 1% of Fort Lauderdale protected as natural areas (where nature can live and is protected). "Distinct ecosystem" has a meaning similar to habitat. The idea is that the amount of each habitat maintained or restored should reflect the percentage of each habitat that was here historically. Cypress wetlands, mangrove swamp, dry Florida scrub, and Pine flatwoods are examples of distinct ecosystems (sometimes called plant and wildlife communities). If a large part of Fort Lauderdale was Pine flatwoods, then a proportionally large amount of natural areas should be maintained or restored as Pine flatwoods. If a small amount of dry Florida scrub existed, then a proportionally small amount will be maintained. In conservation this concept helps nature better maintain the diversity of species. Certain migratory and indigenous birds used the food supply and shelter they found in Pine

flatwoods, for example, and providing it helps them survive. There is also a conservation strategy using "reference ecosystems" to anticipate climate change and other realities, so don't take the word "historically" too literally. The focus is on what is supportive to nature and the plants and wildlife that live here. Restoration does not try to create nature as it was in 1492 in our natural areas. We are trying to help extent life thrive. Among other values, there is great scientific and research value in keeping living species alive. I took the long term goal of 5% from George Gann's email, too, and I could make a long list of imaginative ways by which we might achieve 5% of Fort Lauderdale as places where nature can thrive. It would be better, of course, that we form a task force or other group to plan what that would look like long term, both in terms of what nature needs, and what would be a wonderful asset to the City and add greatly to its livability, green reputation, and interest here. Natural areas are the outdoor rooms of our living natural history museum. When we manage them as such with museum-like protection, interpretation for public education and enjoyment, and financial support from foundations, we will attract great positive attention as an example of how a densely urban area can serve BOTH nature and the people who live and visit there."

RE: Advance Fort Lauderdale Comprehensive Plan Update
DATE: 9/15/2019
FROM: Ann Wiley
"Just the first few sentences of the Policy FLU 1.1.1 are already frustrating as none of the already existing polices happened in the Lennar case. It may be that good policy and ordinances are written but I don't see them being enacted. The building in this city is out of control and there has been little to no thought for natural areas to be preserved and *maintained* in or out of the city center. "

RE: 2020 Advance Conservation Element
DATE: 9/15/2019
FROM: Richard Brownscombe
"Let me know if you have any trouble accessing the Comments in the attached PDF. You can skip everything in brackets [ ], those notes just say what I was thinking about what I was reading. Sorry these recommendation are not more perfect and succinct. Having tried, I have a greater appreciation for what you are doing, of course!"

NEIGHBORHOOD ENHANCEMENT

CONSERVATION ELEMENT

PRINCIPLES

The Core Principles for the Conservation Element are centered around water quality and quantity, air quality, and the wide variety of natural resources found within the City of Fort Lauderdale.

Protect and monitor water and air resources in order to ensure adequate quality and quantity for residents and visitors.

Conserve, protect, and appropriately utilize the City's wide variety of natural resources, including marine and terrestrial wildlife and habitats.

Summary of Comments on 2020 Advance Conservation Element Rev Brownscombe (003).pdf

Page: 1

Number: 1 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 10:13:42 AM -04'00'

Number: 2 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 10:14:13 AM -04'00'

,

Number: 3 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 10:21:58 AM -04'00'

, and wildlife.

[this is at the root of the fundamental paradigm shift in our thinking, to do what is beneficial or non-harmful for BOTH people AND nature or the planet as a whole]

Number: 4 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 10:13:42 AM -04'00'

restore,

[e.g., some natural areas have been partly destroyed and it would be better to restore them than give up when the habitat is rare and the survival of particularly species depends on such habitat]

Number: 5 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 10:02:02 AM -04'00'

plants,

[because so much wildlife survival, food, reproduction, and shelter is dependent on PARTICULAR native plant species]

Number: 6 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 10:03:17 AM -04'00'

,

[comma space]

GOALS AND POLICIES

GOAL 1: Protect and monitor water resources to improve water quality and quantity.

OBJECTIVE CON 1.1: National Pollution Discharge Elimination System (NPDES)

Abide by the National Pollution Discharge Elimination System (NPDES) regulatory standards.

POLICY CON 1.1.1: The City shall report annually to the Florida Department of Environmental Protection (FDEP) for requirements of all aspects of NPDES permitting, including, but not limited to, runoff, stormwater, development impacts, and drainage.

OBJECTIVE CON 1.2: Quality and Quantity of Surface Waters

The City shall protect, monitor, and address issues to ensure quality and quantity of surface waters.

POLICY CON 1.2.1: The City shall coordinate with appropriate agencies to facilitate, monitor, and implement procedures relating to surface water protection and enhancement.

POLICY CON 1.2.2: The City shall coordinate with appropriate agencies to regularly sample and analyze surface waters based upon local, regional, and state regulations.

POLICY CON 1.2.3: The City shall minimize impacts to surface waters through land use planning, restriction of activities that cause adverse effects, identification of sensitive areas, and other strategic planning mechanisms.

OBJECTIVE CON 1.3: Quality and Quantity of Groundwater Resources

The City shall protect, monitor, and address issues pertaining to the quality and quantity of groundwater resources.

POLICY CON 1.3.1: Continue to identify, protect, monitor, and treat all groundwater and aquifer recharge areas, ~~consistent with~~ local, regional, and state requirements.

POLICY CON 1.3.2: Continue source-water (wellfield) monitoring, protection, and treatment programs to proactively and reactively address issues to water quality and quantity.

POLICY CON 1.3.3: The City shall maintain and update a Water Supply Plan on a 10-year outlook basis, in coordination with the South Florida Water Management District (SFWMD).

Page: 2

Number: 1 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:48:46 PM -04'00'
or exceed

Number: 2 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:55:41 PM -04'00'
public education materials and efforts to reduce or eliminate chemical fertilizer and pesticide use and disseminate related science in a public-friendly format.

Number: 3 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:56:39 PM -04'00'

Number: 4 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:56:29 PM -04'00'
to meet or exceed

Number: 5 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 5:16:41 PM -04'00'

Continue to promote public understanding of groundwater quality, sources of pollution and degradation, needs and solutions to achieve high-quality groundwater. Groundwater quality is not just for human use and health, but to maintain a clean environment into the future.

[Perhaps the cleanliness of marine and brackish water is elsewhere. Plastic and micro-plastic contamination should probably be noted. There is also a need to address sewer water contaminates such drugs (pills) in sewage. Some of these need public education (don't flush pills down the toilet and safe alternatives). I may later see where these belong among the other elements I have read.]

GOAL 2: Protect and monitor air quality to provide a higher quality of life for the City's residents and visitors.

OBJECTIVE CON 2.1: Air Quality Standards

Facilitate a comprehensive approach to abide by, or exceed, air quality standards.

POLICY CON 2.2.1: Coordinate with appropriate agencies (e.g. Broward County) to meet federal, state, and county standards pertaining to air quality monitoring and regular sampling.

POLICY CON 2.2.2: Integrate policies from the Climate Change Element that help to reduce air pollutants and greenhouse gases.

GOAL 3: Conserve, protect, and appropriately utilize the City's terrestrial and marine habitats.

OBJECTIVE CON 3.1: Sustainable Landscape and Tree Canopy

Preserve and enhance the natural environment and beauty of the city and promote better quality of life by creating a safe, healthy, and sustainable landscape. The City shall continue to enhance its tree canopy to 33% by 2040.

POLICY CON 3.1.1: Landscape and tree preservation requirements shall be based upon Florida-Friendly Landscaping TM principles in order to reduce the use of fertilizers and pesticides, minimize irrigation needs and attract wildlife.

POLICY CON 3.1.2: Plant selection in development, redevelopment, and city projects should be based on the plant's adaptability to the existing conditions present at the landscaped area and native plant communities, particularly considering appropriate hardiness zone, soil type and moisture conditions, light, mature plant size, desired effect, color, and texture.

POLICY CON 3.1.3: Tree and plant species on the Florida Exotic Pest Plant Council, ("FLEPPC") Invasive Plant Species list, as amended, shall not be included in new development and redevelopment projects, and invasive plant species listed therein shall be removed from construction sites.

POLICY CON 3.1.4: To the extent feasible, the city shall remove invasive plants growing on city-owned parks, right-of-ways and medians, and replacing them with appropriate native or non-invasive species.

POLICY CON 3.1.5: Plant selection in development, redevelopment, city parks and projects, should include the needs of wildlife and rare native plants, including fruit and insects for birds, nectar and host plants for butterflies, native pollinators, shelter and cover needs, biological corridors, seed dispersal, and many other poorly-understood natural areas services. These needs are best served by a wide variety of native plant species in landscaping and restoration.

Page: 3

Number: 1 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 10:25:57 AM -04'00'
restore,

Number: 2 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:43:44 PM -04'00'
[We are making no recommendations here because we believe that others with more knowledge of trees and tree protection are in the process of submitting good recommendations for this section.]

Number: 3 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:47:42 PM -04'00'
and no less than 50% local native species in new and replacement landscaping. [It is our understanding that this is current City policy.]

Number: 4 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 11:21:49 AM -04'00'
and a wide variety of native species

[Florida Friendly was a good first step and still has value to mean non-invasive exotic species and low water use, however, it doesn't recognize the inconvenient truth that most wildlife requires particular native species for long-term survival, so emphasizing a "variety of native species" is a more desirable standard]

Number: 5 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 11:27:08 AM -04'00'
local

[plant survival and importance to wildlife are greater with local species]

Number: 6 Author: richbrobee Subject: Text Box Date: 9/15/2019 4:46:04 PM -04'00'
POLICY CON 3.1.5: Plant selection in development, redevelopment, city parks and projects, should include the needs of wildlife and rare native plants, including fruit and insects for birds, nectar and host plants for butterflies, native pollinators, shelter and cover needs, biological corridors, seed dispersal, and many other poorly-understood natural areas services. These needs are best served by a wide variety of native plant species in landscaping and restoration.

OBJECTIVE CON 3.2: Wetlands Will Be Protected, Conserved, and ~~Monitored~~

Wetlands and the natural functions of wetlands will be protected, conserved, and ~~monitored~~.

POLICY CON 3.2.1: ~~Direct future land uses that are incompatible with the protection and conservation of wetlands and wetland functions away from wetlands.~~

POLICY CON 3.2.2: Abide by federal, state, and local standards for wetland conservation, protection, ~~mitigation, and compensation.~~

GOAL 4: Conserve, protect, and manage the City's wildlife ~~and~~ species ~~of importance~~.

OBJECTIVE CON 4.1: Wildlife and Species

The City will protect ~~and enhance wildlife and species that are important economic drivers~~.

POLICY CON 4.1.1: The City will enforce policies and codes, such as the Clean Marina Program that minimize impacts on marine species, including shellfish and fish species for sport.

POLICY CON 4.1.2: Reduce the careless operation of boats (including speed and wake restrictions) which may harm marine species and habitats, through Marine Unit Police enforcement.

POLICY CON 4.1.3: The City will ensure that appropriate measures are enacted and enforced to protect species ~~of importance~~ and their habitats, including, but not limited to: manatees, sea turtles, terns, and migratory bird flyways; measures may include lighting, netting, and general use restrictions, enforcement of construction standards, as well as restoration and rehabilitation of habitats ~~and species populations~~.

POLICY CON 4.1.4: ~~Continue to maintain the gopher tortoise preserve and habitat near Fort Lauderdale Executive Airport~~.

POLICY CON 4.1.5: Prohibit ~~unmitigated~~ development and human encroachment in and around areas known to be habitats, reproduction, nesting, or feeding sites for animals ~~listed as endangered or threatened species, or species of special concern.~~

Page: 4

Number: 1 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 11:32:06 AM -04'00'

Number: 2 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 11:38:04 AM -04'00'
Managed

[for too long urban natural areas have been left alone and they significantly degraded; management must be active, scientific, and based on experience; county or conservation expertise should be sought]

Number: 3 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 11:39:56 AM -04'00'

Number: 4 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 10:38:19 AM -04'00'
restored,

[because many have been degraded by lack of managment]

Number: 5 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 11:45:14 AM -04'00'
managed with the help of scientific and conservation expertise.

Number: 6 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 11:53:53 AM -04'00'

Number: 7 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 10:37:40 AM -04'00'
Wetlands are given a conservation status that permanently protects the wetlands and wildlife and includes protective buffers or barriers.

Number: 8 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 12:25:08 PM -04'00'

Number: 9 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 12:38:21 PM -04'00'
and utilize wetlands protection as opportunities to increase park, preserve, and open space.

[mitigation and compensation are ways of converting wetlands to development, but the City has only 6/10th of 1% natural areas, so let's not encourage or invite those practices]

Number: 10 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 12:59:35 PM -04'00'

Number: 11 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 12:59:43 PM -04'00'

Number: 12 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 12:59:27 PM -04'00'
plant and

Number: 13 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 12:53:49 PM -04'00'
Plant

Number: 14 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 12:54:02 PM -04'00'
Protection

Number: 15 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 12:42:15 PM -04'00'

Number: 16 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 1:21:56 PM -04'00'
and manage all indigenous plant and wildlife species, including rare and critically endangered species, last remaining populations to prevent local extinction and maintain healthy natural terrestrial and marine ecosystems.

[History teaches us that indigenous species are the source material for the significant scientific breakthroughs in nearly every field of science, so preserving all living native species may be the greatest gift we have for the

Comments from page 4 continued on next page

OBJECTIVE CON 3.2: Wetlands Will Be Protected, Conserved, and ~~Monitored~~

Wetlands and the natural functions of wetlands will be protected, conserved, and ~~monitored~~.

POLICY CON 3.2.1: ~~Direct future land uses that are incompatible with the protection and conservation of wetlands and wetland functions away from wetlands.~~

POLICY CON 3.2.2: Abide by federal, state, and local standards for wetland conservation, protection, ~~mitigation, and compensation.~~

GOAL 4: Conserve, protect, and manage the City's wildlife ~~and~~ species ~~of importance~~.

OBJECTIVE CON 4.1: Wildlife and Species

The City will protect ~~and enhance wildlife and species that are important economic drivers~~.

POLICY CON 4.1.1: The City will enforce policies and codes, such as the Clean Marina Program that minimize impacts on marine species, including shellfish and fish species for sport.

POLICY CON 4.1.2: Reduce the careless operation of boats (including speed and wake restrictions) which may harm marine species and habitats, through Marine Unit Police enforcement.

POLICY CON 4.1.3: The City will ensure that appropriate measures are enacted and enforced to protect species ~~of importance~~ and their habitats, including, but not limited to: manatees, sea turtles, terns, and migratory bird flyways; measures may include lighting, netting, and general use restrictions, enforcement of construction standards, as well as restoration and rehabilitation of habitats ~~and species populations~~.

POLICY CON 4.1.4: ~~Continue to maintain the gopher tortoise preserve and habitat near Fort Lauderdale Executive Airport~~.

POLICY CON 4.1.5: Prohibit ~~unmitigated~~ development and human encroachment in and around areas known to be habitats, reproduction, nesting, or feeding sites for animals ~~listed as endangered or threatened species, or species of special concern.~~

future. Plant hybridization, medicine, structural and chemical processes, microbial usefulness, are only the tip of the biological legacy of our biodiverse inheritance.

If "important economic" species is meant to include some non-native, non-invasive food and sport fish then include them. If it is meant to say that some species have current and potential economic importance, then perhaps "recognizing the current and potential economic importance of local species for scientific research, food, and tourism.]

Number: 17 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 1:22:21 PM -04'00'
public education and

Number: 18 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 1:09:07 PM -04'00'

Number: 19 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 1:25:56 PM -04'00'
[there are no species of unimportance in nature (except mosquitos LOL). The human species is largely ignorant of the roles and importance of nature's more humble species. Most species of economic important are probably native, but perhaps including those that are not makes sense. Could they be included as "non-invasive marine species"?]

Number: 20 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 1:17:47 PM -04'00'

Number: 21 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 1:27:13 PM -04'00'
such as eelgrass, reef, and mangrove.

Number: 22 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 1:23:33 PM -04'00'

Number: 23 Author: richbrobee Subject: Inserted Text Date: 9/12/2019 1:40:30 PM -04'00'
Identify and manage plant and wildlife species in city-owned natural areas, especially rare, critically endangered, and those listed as threatened or endangered.

Number: 24 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 2:11:12 PM -04'00'

Number: 25 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 1:30:56 PM -04'00'
[The time for mitigation in the City (except as law may require) is past. The City should not invite it. With 99.4% of all land in Fort Lauderdale developed and put to human use, we can no longer sell and trade natural areas and the last surviving populations of indigenous species that make home here.]

Number: 26 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 2:38:05 PM -04'00'

Number: 27 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 1:32:52 PM -04'00'
, or the habitat of rare, critically imperiled, threatened or endangered indigenous plants.

[Listed species are a State or Federal designation that does not include rare species in danger of LOCAL extinction, so the terms "critically imperiled, threatened, or endangered" used by the Institute of Regional Conservation are better to save rare species in Broward or Fort Lauderdale.]

GOAL 5: Conserve, protect, and appropriately utilize the City's natural resources, including ~~soils, designated sensitive lands, and natural reservations~~.

OBJECTIVE CON 5.1: ~~Sensitive and Vulnerable Areas and for Lands of Importance~~

The City shall recognize, protect, ~~and plan for sensitive and vulnerable areas, and for lands of importance~~.

POLICY CON 5.1.1: ~~Develop criteria based upon County standards for Local Areas of Particular Concern (LAPCs) and Natural Resource Areas (NRAs) to assess environmentally sensitive lands as a measure to protect and conserve valuable ecological communities within the City, which are an integral part of South Florida's and Broward County's natural environment.~~

POLICY CON 5.1.2: Continue to protect public wellhead areas through cooperating with Broward Environmental Protection and Growth Management (EPGMD), the South Florida Water Management District (SFWMD), and the Florida Department of Environmental Protection (DEP) in their efforts to monitor and regulate groundwater quality.

~~POLICY CON 5.1.3:~~ ~~Develop criteria based upon County standards for LAPCs and NRAs to assess environmentally sensitive lands as a measure to protect and conserve valuable ecological communities within the City, which are an integral part of South Florida's and Broward County's natural environment.~~

POLICY CON 5.1.4: ~~Based on survey and assessment results about environmentally sensitive lands, formulate policies to protect those areas deemed viable and valuable~~.

POLICY CON 5.1.5: Provide for the protection and conservation of the natural functions of existing soils, fisheries, wildlife habitats, rivers, bays, lakes, floodplains, harbors, wetlands including estuarine marshes, freshwater beaches and shores, and marine habitats.

POLICY CON 5.1.6: Continue to monitor, evaluate, and rehabilitate lands and areas that are designated as Brownfields and Superfund sites.

POLICY CON 5.1.7: The adequate and appropriate protection and conservation of wetlands shall be accomplished through a comprehensive planning process which includes a consideration of the types, values, functions, sizes, conditions and locations of wetlands, and which is based on supporting data and analysis.

Page: 5

Number: 1 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 3:56:25 PM -04'00'
restore,

Number: 2 Author: richbrobee Subject: Cross-Out Date: 9/13/2019 4:06:13 PM -04'00'

Number: 3 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 4:10:12 PM -04'00'
natural areas, land necessary for the survival of wildlife and rare plants, natural rock and soils, and natural aquatic and marine environments.

Number: 4 Author: richbrobee Subject: Cross-Out Date: 9/13/2019 5:42:28 PM -04'00'

Number: 5 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 5:44:28 PM -04'00'
Protect and restore 1% of historical ecosystems

Number: 6 Author: richbrobee Subject: Cross-Out Date: 9/13/2019 4:11:06 PM -04'00'

Number: 7 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 3:56:49 PM -04'00'
and restore its last remaining natural areas, give them protected status, acquire natural land, and land use agreements for the natural management of private land. Protecting 1% of each distinct, historical ecosystem is a good starting point (222 terrestrial acres in total) with a long term goal of 5%. This requires no additional loss of intact habitat, no additional loss of degraded, restorable habitat which we know exists, and a significant high-quality ecological restoration effort. Ecosystem types include, for example, Florida scrub, mangrove, Cypress wetland, beach, and others as determined by historical record and ecology science.

Number: 8 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 2:45:14 PM -04'00'

Number: 9 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 3:30:17 PM -04'00'
"Conduct natural areas assessments of all city-owned sites identified by Broward County, and additional natural area sites including those with restoration potential. Private land sites should be identified for possible purchase or land conservation land agreements (e.g. with tax incentives). Assessments of natural areas should include an inventory of living species, the rarity of habitat type, its current conservation condition, and the report should place the natural areas value in context of scarcity of natural areas in Fort Lauderdale (percent protected natural land to total land).

"Protect all natural areas with a permanent conservation status. Implement management plans that protect species and habitats and assist the recovery of an ecosystem that has been degraded, damaged, or destroyed.

Implement natural areas programs for public respite, education, and study that cause no harm to the species living there or degradation of the ecosystem."

[LSPC, NRA, and others are included in now-more-common term "natural areas".

Number: 10 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 2:49:31 PM -04'00'

Number: 11 Author: richbrobee Subject: Cross-Out Date: 9/12/2019 2:51:35 PM -04'00'

Number: 12 Author: richbrobee Subject: Inserted Text Date: 9/13/2019 3:31:38 PM -04'00'
Develop alliances, training, and cooperative agreements with Broward County, conservation organizations, universities, and other cities to develop best practices for the management of natural areas including invasive species removal, hydrology, poaching, species monitoring and management, and other challenges.

POLICY CON 5.1.8: Future land uses, which are incompatible with the protection and conservation of ~~wetlands and wetland functions,~~ shall be directed away from ~~wetlands~~. The type, intensity or density, extent, distribution and location of allowable land uses and the types, values, functions, sizes, conditions and locations of ~~wetlands~~ are land use factors which shall be considered when directing incompatible land uses away from ~~wetlands~~. Land uses shall be distributed in a manner that minimizes the effect and impact on ~~wetlands~~. The protection and conservation of ~~wetlands~~ by the direction of incompatible land uses away from ~~wetlands~~ shall occur in combination with other goals, objectives and policies in the Comprehensive Plan. ~~Where incompatible land uses are allowed to occur, mitigation shall be considered as one means to compensate for loss of wetlands functions.~~

POLICY CON 5.1.9: The City shall work to ensure that soil resources are maintained and upkept through conservation, best practices, and monitoring.

OBJECTIVE CON 5.2: Enhancement, Maintenance, and ~~Upkeep~~ of Natural ~~Reservations~~

The City shall protect its natural resources through the enhancement, maintenance, and upkeep of natural reservations.

POLICY CON 5.2.1: Promote the acquisition, retention, and management of unique natural areas to preserve ~~environmental, recreation, and other public benefits.~~

~~**POLICY CON 5.2.2:** The City shall monitor permit activity in designated Natural Resource Areas (NRAs).~~

POLICY CON 5.2.3: The City shall ~~be sensitive to the need to~~ protect native vegetative communities from destruction by development or misuse.

POLICY CON 5.2.4: The Development Review Committee ~~will consider the presence of environmentally sensitive lands~~ in formulating recommendations for development.

POLICY CON 5.2.5: Plats which include ~~local areas of particular concern~~ shall be referred to the County for Environmental Impact Statements (EISs).

Page: 6

Number: 1 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:01:33 PM -04'00'

Number: 2 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:02:03 PM -04'00'

Number: 3 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:21:43 PM -04'00'
natural areas including all designations such as wetlands, NRAs, LAPCs, sensitive lands, natural reservations, natural parks, preserves, old-growth forest, and any other similar term.

Number: 4 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:02:22 PM -04'00'
them.

Number: 5 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:03:27 PM -04'00'

Number: 6 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:03:11 PM -04'00'
natural areas

Number: 7 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:17:41 PM -04'00'

Number: 8 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:04:08 PM -04'00'
natural areas

Number: 9 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:17:48 PM -04'00'

Number: 10 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:04:26 PM -04'00'
natural areas

Number: 11 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:18:08 PM -04'00'

Number: 12 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:18:16 PM -04'00'

Number: 13 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:18:58 PM -04'00'
natural areas

Number: 14 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:19:19 PM -04'00'
natural areas

Number: 15 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:05:32 PM -04'00'

Number: 16 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:16:57 PM -04'00'
[Again, if laws require, compromise, mitigation, and compensation shall be made, but when only 6/10th of 1% land is natural, no amount of intense pressure, high land value, or seemingly important human use proposed, should be allowed to continue to reduce, use, trade, or give up natural areas or allow them to be polluted or degraded. Except as required by law, this should be a line in the sand and an effort to retain last remaining natural areas, including degraded natural areas. The City should not invite, by its policy, the buy out of natural areas. Loss of any natural area is a forever loss for future generations.]

Number: 17 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 3:27:20 PM -04'00'

Number: 18 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 3:28:44 PM -04'00'
Conservation

Number: 19 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 3:27:38 PM -04'00'
Conservation

Number: 20 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 3:29:11 PM -04'00'

Comments from page 6 continued on next page

POLICY CON 5.1.8: Future land uses, which are incompatible with the protection and conservation of ~~wetlands and wetland functions,~~ shall be directed away from ~~wetlands~~. The type, intensity or density, extent, distribution and location of allowable land uses and the types, values, functions, sizes, conditions and locations of ~~wetlands~~ are land use factors which shall be considered when directing incompatible land uses away from ~~wetlands~~. Land uses shall be distributed in a manner that minimizes the effect and impact on ~~wetlands~~. The protection and conservation of ~~wetlands~~ by the direction of incompatible land uses away from ~~wetlands~~ shall occur in combination with other goals, objectives and policies in the Comprehensive Plan. ~~Where incompatible land uses are allowed to occur, mitigation shall be considered as one means to compensate for loss of wetlands functions.~~

POLICY CON 5.1.9: The City shall work to ensure that soil resources are maintained and upkept through conservation, best practices, and monitoring.

OBJECTIVE CON 5.2: Enhancement, Maintenance, and ~~Upkeep~~ of Natural ~~Reservations~~

The City shall protect its natural resources through the enhancement, maintenance, and upkeep of natural reservations.

POLICY CON 5.2.1: Promote the acquisition, retention, and management of unique natural areas to preserve ~~environmental, recreation, and other public benefits.~~

~~POLICY CON 5.2.2:~~ ~~The City shall monitor permit activity in designated Natural Resource Areas (NRAs).~~

POLICY CON 5.2.3: The City shall ~~be sensitive to the need to~~ protect native vegetative communities from destruction by development or misuse.

POLICY CON 5.2.4: The Development Review Committee ~~will consider the presence of environmentally sensitive lands~~ in formulating recommendations for development.

POLICY CON 5.2.5: Plats which include ~~local areas of particular concern~~ shall be referred to the County for Environmental Impact Statements (EISs).

Number: 21 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 3:29:01 PM -04'00'
Areas

Number: 22 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 3:38:53 PM -04'00'
and manage its natural areas for the conservation of wildlife, native plants, and its diversity of habitats, especially rare and endangered species and ecosystems.

Number: 23 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:24:57 PM -04'00'

Number: 24 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:30:42 PM -04'00'
wildlife and native plants. Public enjoyment of natural areas for respite, appreciation, education, and study shall be promoted when no harm to wildlife and native plants can be reasonably assured by the access or permission granted or allowed.

Number: 25 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:31:06 PM -04'00'

Number: 26 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:32:05 PM -04'00'
[Or use the last sentence in 5.2.1 here.]

Number: 27 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:32:56 PM -04'00'

Number: 28 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:33:58 PM -04'00'

Number: 29 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:34:49 PM -04'00'
shall permit the destruction or degradation of natural areas

Number: 30 Author: richbrobee Subject: Cross-Out Date: 9/15/2019 4:35:35 PM -04'00'

Number: 31 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:35:54 PM -04'00'
natural areas

Number: 32 Author: richbrobee Subject: Inserted Text Date: 9/15/2019 4:40:34 PM -04'00'
with a statement of the City's goals to designate 1% of each distinct, historical ecosystem (222 terrestrial acres) in the short term and 5% in the long term.

RE: Proposed changes to education element
DATE: 9/24/2019
FROM: Mary Fertig
"I have re-written these to remove names of specific programs and incorporate the goals of the programs. Please note the changes to school enrollment/downtown sites, the expansion of the bullet point which included the aviation magnet and the last bullet point addressing maximizing parks for educational opportunities.

Suggested changes to Education Element Powerpoint slide

- Coordinate annual review of school enrollment projections and school capacity
- Explore alternate measures of student success beyond the school grade
- Support early learning and after schools' programs
- Support creative and career – focused programs which build academic, character and real-world skills in Fort Lauderdale schools.
- Annually evaluate school enrollment and projected enrollment to ensure that sufficient school capacity and opportunities exist in Fort Lauderdale. Where necessary identify sites for school development.
- Encourage and create lifelong learning opportunities to ensure programs and opportunities are available for City residents of all ages.
- Boost social mobility in economically distressed communities by focusing on building financial capability among students, workers, and residents in Fort Lauderdale
- Explore with school board support and industry partners the establishment of programs which prepare students for careers in local industries such as aviation, the marine industries, hospitality and tourism, technology and construction.
- Maximize parks for educational and recreational opportunities

RE: Comprehensive Plan Edits/Suggestions
DATE: 10/7/2019
FROM: Scott Strawbridge

"Future Land Use

POLICY FLU 2.5.1: The City shall ensure staff complete training in the history and structure of racism in the United States and in Broward County. In addition, staff shall complete training on implicit bias in community sectors (ie., housing, education, economic development, etc).

POLICY FLU 2.5.2a: The City shall consider all potential outcomes of gentrification including housing affordability and displacement, capacity building of impacted populations, preserving cultural assets, being responsive to the needs of underserved and underresourced markets, expanding minority business ownership and otherwise managing externalities that could overwhelm vulnerable populations.

POLICY FLU 2.6.1: The City recognizes that 80% of an individuals' health outcomes are determined by their behaviors, and the social and environmental conditions in which they live, work, and play.

POLICY FLU 2.6.1a: The City shall increase awareness and support efforts to educate public officials, planners, and health practitioners about the Social Determinants of Health.

POLICY FLU 2.6.1b: The City shall institute a cross-disciplinary approach to addressing the Social Determinants of Health and potential impacts to health equity resulting from all land use policy, public infrastructure, or services decisions. Considerations shall include potential impacts upon individuals': access to clinical care, air and water quality, housing, transportation, jobs & income, education, social cohesion, community safety, child development, and diet & exercise.

NEIGHBORHOOD ENHANCEMENT

FUTURE LAND USE ELEMENT

INTENT

The intent of the Future Land Use Element is to guide orderly and sustainable development and meet the City's vision for its future built environment.

The City's future land use map along with the goals, objectives and policies included in this element help to define existing and future land uses, guide the designation of proposed future land use distribution, location, and intensity, while meeting social, economic and environmental needs, providing for adequate services and facilities, and ensuring compatibility of land uses.

The goals, objectives and policies place special focus on the context and character of specific areas and neighborhoods, promoting an appropriate mix of uses, supporting access to a local and regional multi-modal transportation network, ensuring capital investments support future growth and contribute to a sustainable environment and a high quality of life.

2020 Advance Fort Lauderdale Comprehensive Plan
DRAFT 6/7/2019

Summary of Comments on Comp Plan Future Land Use.pdf

Page: 1

Number: 1 Author: Scott Subject: Cross-Out Date: 10/6/2019 8:11:03 AM -04'00'

Number: 2 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:11:19 AM -04'00'
,

Number: 3 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:11:56 AM -04'00'
, healthy, equitable

POLICY FLU 1.2.1e: The Unified Flex Strategy shall be utilized to maintain the availability of nonresidential flexibility throughout the City and availability of affordable housing.

POLICY FLU 1.2.1f: The City shall adopt a mixed-use zoning district for specific use when flex units are allocated along major transit corridors for future development.

POLICY FLU 1.2.1g: The City shall consider the availability of future infrastructure, multimodal transportation, climate change and resiliency considerations in the designation of eligible areas for flexibility unification.

GOAL 2 - Sustainable Development: The City shall encourage sustainable, smart growth which designates areas for future growth, promotes connectivity, social equity, preservation of neighborhood character and compatibility of uses.

OBJECTIVE FLU 2.1: Neighborhood Compatibility

Protect existing and future residential neighborhoods from impacts created by more intense adjacent uses.

EVALUATION MEASURE FLU 2.1a: Annual record of development permits issued for non-residential development adjacent to residential neighborhoods.

POLICY FLU 2.1.1: Continue to utilize intensity criteria contained in the Future Land Use Element to ensure that all new development is compatible with adjacent residential land uses.

POLICY FLU 2.1.2: Maintain, through the ULDR, buffering provisions, including setbacks and buffer landscaping, which are necessary to protect residential areas from adjacent uses of greater intensity.

POLICY FLU 2.1.3: Through the design review process, the City shall continue to maintain provisions which address the potential adverse impacts of noise, vibration, air pollution, glare, heat, solid waste, hazardous waste, fire and explosion.

OBJECTIVE FLU 2.2: Neighborhood Resilience

Implement strategies to create more resilient neighborhoods that can adapt to climate change and sea level rise.

EVALUATION MEASURE FLU 2.2a: Adoption of ULDR Amendments for increased building flood protection and a transfer of development rights program.

POLICY FLU 2.2.1: Increase protection of residential areas and neighborhoods through the support of green design guidelines and/or form-based codes for new development and major renovation residential areas, historic neighborhoods, and areas vulnerable to flooding.

POLICY FLU 2.2.2: The City will continue to encourage new development in higher elevated, and areas less vulnerable to flooding, such as Uptown.

Page: 24

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:21:23 AM -04'00'
health and well-being.

POLICY FLU 2.4.3b: The City shall create redevelopment strategies to promote redevelopment and "in-fill" activities in the NWPFH through the implementation of land development regulations for the Northwest Regional Activity Center (Northwest-RAC).

POLICY FLU 2.4.3c: Amend the ULDR as necessary to incorporate appropriate recommendations of the NWPFH CRA Plan to implement the Northwest-RAC.

POLICY FLU 2.4.3d: Evaluate industrial land uses in the Northwest RAC to determine where possible zoning changes are needed to assure compatibility with surrounding neighborhoods.

POLICY FLU 2.4.3e: Evaluate established residential zoning in the Northwest-RAC neighborhoods to determine appropriate densities.

POLICY FLU 2.4.3f: Amend the Comprehensive Plan, as necessary, to incorporate recommendations of the Sistrunk Boulevard Safe Neighborhoods Plan.

POLICY FLU 2.4.3g: Continue to seek state assistance under the Florida Main Street Program and other state sources for redevelopment of Sistrunk Boulevard.

POLICY FLU 2.4.3h: Encourage developers to build mixed use projects and implement the City's streetscape design and urban enhancements for Sistrunk Boulevard.

POLICY FLU 2.4.4: The Central City Community Redevelopment Area (CRA) Plan envisions a vibrant community in the Middle River-South Middle River-Sunrise Boulevard area with a successful mix of business and residential uses defined with walk-able streets and quality buildings, through the creation of guidelines that would enhance the pedestrian realm and give clear intent for an active street level and an exceptional public realm experience.

OBJECTIVE FLU 2.5: Equitable Neighborhoods

The City shall continue to support environmental justice and social equity as an approach for meeting the needs of underserved and vulnerable Fort Lauderdale neighbors through policies and programs that reduce disparities while fostering healthy and vibrant neighborhoods. [1]

POLICY FLU 2.5.1: For local and regional land use policy and public infrastructure and services decisions, the City shall continue to ensure fair treatment and meaningful participation when considering the impacts to underserved and vulnerable Fort Lauderdale neighbors, including but not limited to, the economically disadvantaged, racial and ethnic minorities, the uninsured, low-income children, the elderly, the homeless and those with chronic health conditions, including severe mental illness. [3]

POLICY FLU 2.5.2: Changes in land use and zoning designations shall consider environmental justice to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including interrelated social and economic effects, on underserved and vulnerable populations. [5]

POLICY FLU 2.5.3: The City shall prepare a Redevelopment Impact Study for the purpose of identifying areas that are vulnerable to, or may be in the early stages of an influx of investment and changes to the built environment that would lead to rising home values and cultural displacement. [7]

Page: 27

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 11:30:29 AM -04'00'

POLICY FLU 2.5.1: The City shall ensure staff complete training in the history and structure of racism in the United States and in Broward County. In addition, staff shall complete training on implicit bias in community sectors (ie., housing, education, economic development, etc).

Number: 2 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:30:40 AM -04'00'

, sustainable,

Number: 3 Author: Scott Subject: Inserted Text Date: 10/6/2019 10:10:08 AM -04'00'

Number: 4 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:27:36 AM -04'00'

social equity and

Number: 5 Author: Scott Subject: Inserted Text Date: 10/6/2019 10:02:24 AM -04'00'

POLICY FLU 2.5.2a: The City shall consider all potential outcomes of gentrification including housing affordability and displacement, capacity building of impacted populations, preserving cultural assets, being responsive to the needs of underserved and underresourced markets, expanding minority business ownership and otherwise managing externalities that could overwhelm vulnerable populations.

Number: 6 Author: Scott Subject: Inserted Text Date: 10/6/2019 10:09:02 AM -04'00'

Social

Number: 7 Author: Scott Subject: Inserted Text Date: 10/6/2019 10:05:47 AM -04'00'

OBJECTIVE FLU 2.6: Enhance Community Health and Food Access

Create neighborhoods that enhance community health through access to public amenities, healthy food, and safe environments, for everyone.

POLICY FLU 2.6.1: The City will regularly monitor the food level of accessibility for residents to identify ~~and reduce any~~ healthy food priority areas in the City.

POLICY FLU 2.6.1a: Utilize data collected by the US Department of Agriculture, the Center for Disease Control, and from business licenses to map the locations of grocery stores, supermarkets, farmer markets, and similar establishments to determine the accessibility for residents in the City.

POLICY FLU 2.6.1b: Annually update the location map to determine underserved areas in the community.

POLICY FLU 2.6.2: Encourage the location of grocery stores, farmers markets, and community food gardens to support access to healthful food for all areas where people live.

POLICY FLU 2.6.2a: The City shall provide incentives for grocery stores, full-service supermarkets, farmers markets, food carts and other mobile vendors to locate in underserved communities, including consideration of land use amendments and permitted and consideration of conditional use regulations, where appropriate.

POLICY FLU 2.6.2b: Provide and promote resources designed to encourage urban agriculture opportunities, including, but not limited to, community and home gardens, including consideration of land use amendments and permitted and consideration of conditional use regulations, where appropriate.

POLICY FLU 2.6.2c: Accommodate concentrations of food service providers at strategic locations in relation to the transportation system and concentrations of housing and employment in the City.

POLICY FLU 2.6.2d: Recognize the value of the local food system in sustaining the local economy and neighborhoods by supporting our capacity to grow, process, distribute, and access local foods. The City will explore, as appropriate, regulations allowing for the development of urban farms, vertical farming, and associated land use regulations to allow for hydroponic and aquaponic uses within the City.

POLICY FLU 2.6.2e: The City shall seek opportunities to partner with non-profit organizations, local businesses, student organizations, and other community efforts aimed at providing healthy and affordable food options for communities in Fort Lauderdale, including to identify areas of the City in need of additional resources or services.

Page: 28

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 10:29:17 AM -04'00'

POLICY FLU 2.6.1: The City recognizes that 80% of an individuals' health outcomes are determined by their behaviors, and the social and environmental conditions in which they live, work, and play.

POLICY FLU 2.6.1a: The City shall increase awareness and support efforts to educate public officials, planners, and health practitioners about the Social Determinants of Health.

POLICY FLU 2.6.1b: The City shall institute a cross-disciplinary approach to addressing the Social Determinants of Health and potential impacts to health equity resulting from all land use policy, public infrastructure, or services decisions. Considerations shall include potential impacts upon individuals': access to clinical care, air and water quality, housing, transportation, jobs & income, education, social cohesion, community safety, child development, and diet & exercise.

Number: 2 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:33:24 AM -04'00'

and monitor for patterns of health disparity

Number: 3 Author: Scott Subject: Cross-Out Date: 10/6/2019 8:34:03 AM -04'00'

Number: 4 Author: Scott Subject: Cross-Out Date: 10/6/2019 8:34:17 AM -04'00'

Number: 5 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:36:38 AM -04'00'

, healthy community

Number: 6 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:37:31 AM -04'00'

Florida Dept. of Health, Enterprise 360,

Parks POLICY PR 2.5.1c:The City shall extend opportunities for diverse voices to be included in the planning, design, operations, and programming of spaces in order to create a sense of shared ownership and connectivity to the public space. When people are co-creators of their spaces, those spaces become welcoming to all.

POLICY PR 2.5.1d: The City shall strive to Intentionally design public space to capture local identity and bolster community pride by including the existing community in the planning process and designing a space that meets the specific needs of that community. Public spaces can and should function as the heart of a community, creating safe space for public life that is healthy, social and festive.

GOALS, POLICIES, AND EVALUATION MEASURES

GOAL 1: Be a community where persons of all ages are able to partake in a fun and healthy lifestyle.

OBJECTIVE PR 1.1: Providing for Park Space

Ensure that the provision of parks, facilities, and programs adequately meets or exceeds the needs and desires of the City's residents.

EVALUATION MEASURE PR 1.1.1: The City will provide parkland and open space to meet a Level of Service Standards of 4.5-acres of park and open space per one thousand residents at a service radius of less than one-half mile to parks, playgrounds and walking and biking trails for all residents. The 4.5-acre standard shall be comprised of a mix of parkland, open space and facility types.

EVALUATION MEASURE PR 1.1.1a: 3 acres of community level parks for each 1000 residents.

EVALUATION MEASURE PR 1.1.1b: The City shall ensure consistency in, in its requirements, among Florida Statues, Florida Administrative Code, BrowardNext, and the City's Parks and Recreation System Master Plan. The City shall update its policies as applicable upon changes in Broward County LOS standards.

EVALUATION MEASURE PR 1.1.1c: The City will assess credit for private parks and recreational space towards the LOS standards based on the following criteria:

I. Up to 50% of the total acreage of publicly owned golf courses that are zoned for recreational use and semi-public golf courses that are either zoned and deed restricted for open space use or zoned and restricted by other development order, such as site plan or subdivision approval, for open space use. However, golf course acreage may satisfy no more than 15% of the total Community Park requirement.
II. Other private recreational acreage or open areas over 0.5 acres that are zoned and deed restricted for open space use including a mixture of active and passive recreational facilities. Up to 100% of the total acreage may be counted provided the area does not exceed 3 acres/1,000 residents sharing the facilities.
III. Up to 10% of the total acreage of public or private Regional Parks located within municipal jurisdictions, with a maximum of 10 acres per park.

POLICY PR 1.1.2: Continue to review and revise, where necessary, the City's land development codes and regulations to ensure that all new development in the City of Fort Lauderdale meets the established level of service standards.

EVALUATION MEASURE PR 1.1.2a: The City shall encourage publicly accessible open space through requirements for new residential development projects, in order to accommodate the City's needs. Such open space shall include greenways, blueways, and other natural areas.

Summary of Comments on Comp Plan - Parks.pdf

Page: 2

Number: 1 Author: Scott Subject: Inserted Text Date: 10/5/2019 2:03:13 PM -04'00'
and equitably

Number: 2 Author: Scott Subject: Inserted Text Date: 10/5/2019 2:01:00 PM -04'00'
neighborhood trails,

EVALUATION MEASURE PR 1.1.2b: The City shall amend the Comprehensive Plan within 12 months and the ULDRs within 18 months of adoption of any Parks and Recreation System Master Plan updates.

POLICY PR 1.1.2c: All designated park sites are to be zoned P for Parks, Recreation and Open Space and have a land use designation of Park-Open Space, where appropriate.

POLICY PR 1.1.2d: No parkland shall be diverted to other uses except in instances of overriding public interest.

POLICY PR 1.1.3: The City shall, by 2023, establish and begin to implement a Blueways System Plan for existing navigable waterways.

POLICY PR 1.1.4: Amendments to the Land Use Plan containing golf courses, including closed golf courses, shall address the following:

a. The impact of the loss of open space on the surrounding residential areas. The loss of open space must be mitigated through provision of parks and open space to serve the surrounding neighborhood.

b. Management of storm water retention taking into account the extent to which the golf course provided storm water retention for the surrounding development and how this will be mitigated, along with any additional storm water impacts created by the new development.

c. Minimization of the impact on natural resources including wetlands, lakes, aquifer recharge areas and the tree canopy, including any historic trees on the site.

d. Mitigation of environmental contamination. The level of environmental contamination must be determined by conducting a Phase 1 environmental assessment. A Phase 2 environmental assessment may be required based upon the findings of the Phase 1 assessment.

e. Integration of the proposed development with the surrounding areas including how the development will tie into the existing neighborhoods through roads, sidewalks, parks/ open space and greenways.

OBJECTIVE PR 1.2: Age ~~Equality~~ for Park Space

Ensure affordable recreation opportunities are available for individuals of all ages.

EVALUATION MEASURE PR 1.2.1: Utilize the Local Facility Guidelines (LFG) in the Parks and Recreation System Master Plan, where applicable, as minimum provisional requirements, when programming new and renovated recreational facilities and park spaces.

Page: 3

Number: 1 Author: Scott Subject: Inserted Text Date: 10/5/2019 2:04:17 PM -04'00'
Equity

Number: 2 Author: Scott Subject: Inserted Text Date: 10/5/2019 2:04:44 PM -04'00'
and circumstances

- The protection of natural resources from potential adverse impacts associated with uses or activities on adjacent lands, including a land use compatibility analysis and the provision of wetland buffers and buffer yards in the Growth Management Plan and Land Development Code. Where applicable, the City shall ensure that the environmental systems mentioned above are protected, preserved, and/or enhanced;
- To provide for coordination between the local government and other federal, state and local agencies or nonprofit organizations in acquiring or managing natural areas or open space; and
- Climate change related projects, including those pertaining to sea level rise, flood mitigation, and Adaptation Action Areas (AAAs).

POLICY PR 2.2.4: The City shall continue and expand the use of cooperative public-private partnerships, or P3s, public and private schools, surrounding jurisdictions nonprofit agencies, houses of worship and the private sector to help ensure facilities for active recreational opportunities year-round.

OBJECTIVE PR 2.3: Park Safety

Ensure that parks and their facilities have adequate meet or exceed safety measures for visitors and users.

POLICY PR 2.3.1: Maintain and improve infrastructure within park properties to promote safe use of facilities and mitigate potential harm to patrons.

POLICY PR 2.3.2: Provide security measures (including lighting and other applicable infrastructure) to reduce after hour use of parks and facilities and the amount of crime criminal activity that occurs within or around park locations.

POLICY PR 2.3.3: Encourage Crime Prevention Through Environmental Design (CPTED) concepts/ guidelines for all recreational and open spaces in Fort Lauderdale. Where possible, the City shall encourage training on CPTED concepts for staff.

POLICY PR 2.3.4: Through policy initiatives and coordination with the Police Department, the City shall give high priority to public safety at park and recreation sites.

POLICY PR 2.3.5: The City shall continue to implement the policies and principles to achieve Vision Zero safe streets (i.e. the "five Es" - Engineering, Education, Encouragement, Enforcement, and Evaluation), which includes specific objectives intended to increase Fort Lauderdale's walkability, bikeability, connectivity, and safety.

POLICY PR 2.3.6: Encourage intergovernmental coordination to improve the appropriate perception and awareness of safety within public park and recreation areas.

OBJECTIVE PR 2.4: Ensure Public Feedback on Programming

Engage in conversation with the public to ensure adequate levels of recreational programming and promote usage of parks and recreation resources.

POLICY PR 2.4.1: The City shall establish regularly occurring communication to obtain public input into key park planning and design decisions.

Page: 7

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 11:14:22 AM -04'00'
affordable and senior housing sites,

POLICY PR 2.4.1a: The City shall conduct one annual citywide survey of the population to determine the adequacy and quality of services and to determine areas of dissatisfaction and need.

POLICY PR 2.4.1b: The City shall gather and analyze participation and usage data as a measure of programming success and utilization effectiveness.

POLICY PR 2.4.1c: The City shall administer survey sampling in all parks on an ongoing basis to update/address park maintenance concerns and recreational needs.

POLICY PR 2.4.2: The City shall utilize a variety of avenues, including [1]ocial media and other technology-based communication systems, to communicate with and solicit input from the public.

OBJECTIVE PR 2.5: Promotion of Community Unity and Health

Create and leverage parks and recreation programming to promote community unity and health.

POLICY PR 2.5.1: The City shall research and initiate new recreation facilities and programs to expand recreational opportunities.

POLICY PR 2.5.1a: The City shall maintain and publicize a schedule of annual and special events open to the public.

POLICY PR 2.5.1b: The City shall utilize program evaluations to determine and document user satisfaction and preferences in recreational and special programming. [2]

POLICY PR 2.5.2: The City shall strive to ensure that all youth residents should be able to participate in an out of school or summer camp programs.

POLICY PARK 2.5.3: The City shall incorporate healthy community programming through education and physical activity programming.

POLICY PR 2.5.3a: Promote nutrition education at parks through awareness and outreach campaigns such as community fruit tree planting programs.

OBJECTIVE PR 2.6: Promoting Economic Development

Integrate in parks and recreation planning the significant role leisure provision plays in economic prosperity of the community.

POLICY PR 2.6.1: The Parks and Recreation Department shall assist the Greater Fort Lauderdale Chamber of Commerce and the Visitor and Convention Bureau in promoting recreation activities and facilities to our visitors and residents by providing maps, brochures, and up-to-date information as needed.

Page: 8

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 8:00:45 AM -04'00'
placemaking workshops and engagements,

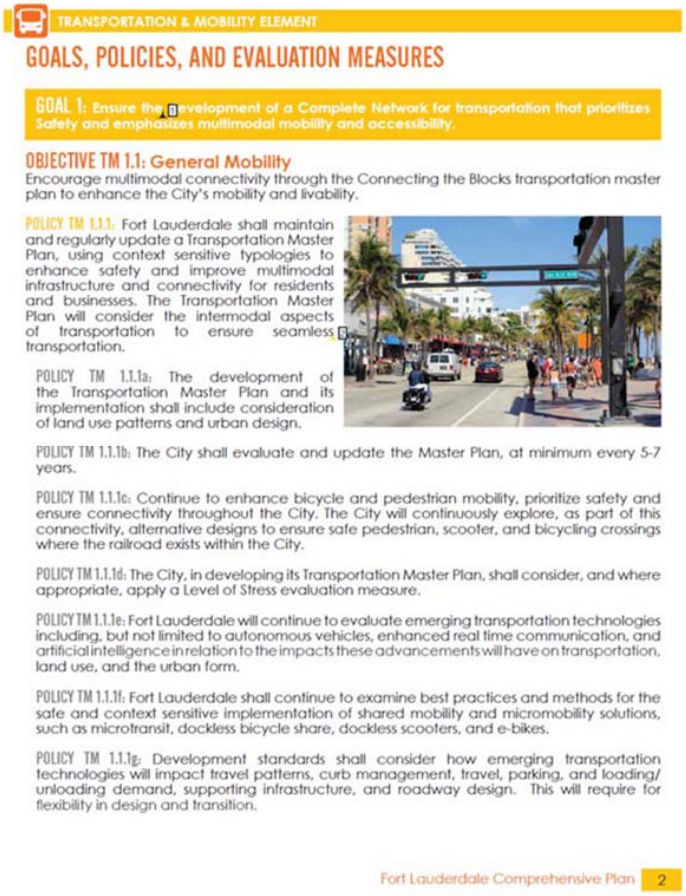
Number: 2 Author: Scott Subject: Inserted Text Date: 10/6/2019 11:29:05 AM -04'00'
POLICY PR 2.5.1c:: The City shall extend opportunities for diverse voices to be included in the planning, design, operations, and programming of spaces in order to create a sense of shared ownership and connectivity to the public space. When people are co-creators of their spaces, those spaces become welcoming to all.
POLICY PR 2.5.1d: The City shall strive to Intentionally design public space to capture local identity and bolster community pride by including the existing community in the planning process and designing a space that meets the specific needs of that community. Public spaces can and should function as the heart of a community, creating safe space for public life that is healthy social and festive.

Transit:

POLICY TM 1.4.1f: The City shall prioritize and construct the LauderTrail and Old Dillard Trail pathways to enhance local connectivity.

POLICY TM 1.7.5b: The City shall perform an equity analysis of all existing and proposed new routes. The analysis should include consideration of Social Determinants of Health and their impacts upon vulnerable populations.

Policy TM 1.7.5c: Prioritize improvements based on vulnerable users, at risk populations, and locations with higher concentrations of these populations, including, but not limited to schools, after care facilities, affordable and senior housing sites, parks, and healthcare facilities.



TRANSPORTATION & MOBILITY ELEMENT

GOALS, POLICIES, AND EVALUATION MEASURES

GOAL 1: Ensure the development of a Complete Network for transportation that prioritizes Safety and emphasizes multimodal mobility and accessibility.

OBJECTIVE TM 1.1: General Mobility

Encourage multimodal connectivity through the Connecting the Blocks transportation master plan to enhance the City's mobility and livability.

POLICY TM 1.1.1: Fort Lauderdale shall maintain and regularly update a Transportation Master Plan, using context sensitive typologies to enhance safety and improve multimodal infrastructure and connectivity for residents and businesses. The Transportation Master Plan will consider the intermodal aspects of transportation to ensure seamless transportation.

POLICY TM 1.1.1a: The development of the Transportation Master Plan and its implementation shall include consideration of land use patterns and urban design.

POLICY TM 1.1.1b: The City shall evaluate and update the Master Plan, at minimum every 5-7 years.

POLICY TM 1.1.1c: Continue to enhance bicycle and pedestrian mobility, prioritize safety and ensure connectivity throughout the City. The City will continuously explore, as part of this connectivity, alternative designs to ensure safe pedestrian, scooter, and bicycling crossings where the railroad exists within the City.

POLICY TM 1.1.1d: The City, in developing its Transportation Master Plan, shall consider, and where appropriate, apply a Level of Stress evaluation measure.

POLICY TM 1.1.1e: Fort Lauderdale will continue to evaluate emerging transportation technologies including, but not limited to autonomous vehicles, enhanced real time communication, and artificial intelligence in relation to the impacts these advancements will have on transportation, land use, and the urban form.

POLICY TM 1.1.1f: Fort Lauderdale shall continue to examine best practices and methods for the safe and context sensitive implementation of shared mobility and micromobility solutions, such as microtransit, dockless bicycle share, dockless scooters, and e-bikes.

POLICY TM 1.1.1g: Development standards shall consider how emerging transportation technologies will impact travel patterns, curb management, travel, parking, and loading/ unloading demand, supporting infrastructure, and roadway design. This will require for flexibility in design and transition.

Fort Lauderdale Comprehensive Plan 2

Summary of Comments on Comp Plan - Transportation.pdf

Page: 2

Number: 1	Author: Scott	Subject: Inserted Text	Date: 10/6/2019 11:08:44 AM -04'00'
equitable			
Number: 2	Author: Scott	Subject: Inserted Text	Date: 10/6/2019 11:09:36 AM -04'00'
and equitable access to			

POLICY TM 1.1.1h: The City shall consider context sensitive solutions that allow existing and emerging transportation modes to utilize the roadway network with intelligent technology system components and broader communication systems between users and vehicles.

POLICY TM 1.1.1i: The City shall consider the potential changes to design of the public realm if and when the need for on-street parking is significantly reduced, and supporting infrastructure for shared use, electrical vehicles are increased.

POLICY TM 1.1.1j: The City shall consider how electric-assist technologies developed for bicycles, scooters or other alternative mobility options and sharing services will impact commuting patterns, enhancing sidewalk and roadway networks, parking infrastructure utilization and design of the public realm.

POLICY TM 1.1.2: The City shall use "Complete Streets" principles to ensure that roadways are planned, designed, and maintained in a context sensitive manner for safe use by users of all ages and abilities, including pedestrians, bicyclists, transit users, motorists, and freight vehicles.

POLICY TM 1.1.3: Fort Lauderdale shall enhance and/or re-establish street-network connectivity and circulation (e.g. removal of barriers which close off or inhibit pedestrian, bicycle, or vehicle access to public rights-of-way, including during construction activities).

POLICY TM 1.1.4: The City shall coordinate multi-modal use of rights-of-way with appropriate supporting land uses, urban form, and densities necessary to support transit oriented development (e.g. public spaces that promote ground level interest, reduced setbacks, surface parking behind buildings), as applicable.

POLICY TM 1.1.4a: Development plans for new developments and redevelopment of residential and non-residential sites shall show any existing and proposed bicycle and pedestrian access to adjacent properties and transit stops.

POLICY TM 1.1.4b: Continue to evaluate and implement pedestrian and transit design standards as they relate to incorporating mass transit, car pool, pedestrians, and bicycle amenities in different commercial, industrial, and office buildings in activity centers.

POLICY TM 1.1.4c: Fort Lauderdale shall consider opportunities and methods to partner on and support roadway "shared space" efforts such as, but not limited to, the (re)design of appropriate rights-of-way to best accommodate festivals, parades, open air markets, and other events that encourage social interaction, safety education, and community building.

POLICY TM 1.1.4d: The City of Fort Lauderdale shall continue to support private/public collaboration to integrate improvements to transit, bicycle and pedestrian facilities into private development.

Page: 3

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 11:11:39 AM -04'00'
urban trails, placemaking engagements and activities,

Number: 2 Author: Scott Subject: Inserted Text Date: 10/6/2019 11:12:21 AM -04'00'
and placemaking engagements and activities

EVALUATION MEASURE TM 1.3.1b: The City shall strive to reduce the number of missing pedestrian connections through setting of appropriate goals in its Master Plan, and shall adopt those goals by reference into its Comprehensive Plan.

POLICY TM 1.3.2: Continue to implement the design concepts in high areas of pedestrian traffic that include, but are not limited to, street trees, canopies/arcades, patterned colored pavement and street signage, and area specific recommendations as noted by the Connecting the Blocks report.

POLICY TM 1.3.3: Provide pedestrian safety by ensuring well-lit streets, intersections, pedestrian refuges, midblock crossings, and sidewalks. As needed, the City will conduct lighting analyses in areas of high crash incidents involving pedestrians.

POLICY TM 1.3.4: The City's Unified Land Development Regulations (ULDR) shall require sidewalks construction development and redevelopment, except where not feasible.

OBJECTIVE TM 1.4: Bicycle Mobility

Ensure a complete network that provides for bicycling as a viable primary modal choice.

POLICY TM 1.4.1: The City shall maintain a listing of existing bicycle infrastructure, and a prioritized inventory of missing bicycle links and facilities within the City, inclusive of location and infrastructure needs for each missing link.

EVALUATION MEASURE TM 1.4.1a: The City shall strive to reduce the number of missing bicycle connections through setting of appropriate goals in its Master Plan, and shall adopt those goals by reference into its Comprehensive Plan.

POLICY TM 1.4.1b: The City shall continue to participate in bicycle planning programs of the Broward MPO and the FDOT to provide bike facilities with all roadway improvements, where feasible.

POLICY TM 1.4.1c: Continue to work with the Downtown Fort Lauderdale, FDOT, Broward MPO, and other agencies to promote the use of bicycles and provide convenient locations for bicycle parking and boulevards in activity centers and throughout the City when appropriate.

POLICY TM 1.4.1d: The City shall consider opportunities and incentives for the provision of appropriate facilities to support bicycling, such as showers, lockers and bicycle parking by new development.

POLICY TM 1.4.1e: Where possible, the City shall encourage the provision of convenient, covered and secure bicycle parking at transit stations, schools, public facilities and commercial centers.

POLICY TM 1.4.1f: The City shall prioritize and construct the LauderTrail planned pathways to enhance local connectivity.

POLICY TM 1.4.2: Work with transit agencies to improve connections between rail and bus and existing and planned bicycle routes.

Page: 6

Number: 1	Author: Scott	Subject: Inserted Text	Date: 10/6/2019 11:07:15 AM -04'00'
equitably			
Number: 2	Author: Scott	Subject: Inserted Text	Date: 10/6/2019 11:05:23 AM -04'00'
and Old Dillard Trail			

OBJECTIVE TM 1.7: Transit

Transit amenities should be of high quality to support multimodal transportation and reduce the use of the single-occupant vehicle.

EVALUATION MEASURE TR 1.7.1: The City of Fort Lauderdale shall participate in Broward County's Transportation Concurrency System, and adopts the following Transit Level of Service:

Port/Airport District	Establish at least one fixed-route with direct service to Fort Lauderdale-Hollywood International Airport.
	Continue studies to examine intermodal connections between Port Everglades, Fort Lauderdale-Hollywood International Airport, and the Greater Fort Lauderdale/Broward County Convention Center.
Central District	Achieve peak headways of 30 minutes or less on 60% of local bus routes.
Eastern Core District	Achieve peak headways of 30 minutes or less on 60% of routes, and support the maintenance and enhancement of the Broward Central Bus Terminal in Fort Lauderdale.

POLICY TM 1.7.1a: The City's development review process shall provide that, for purposes of issuing development orders and permits, the adopted public transit level of service shall not be negatively affected by proposed development.

POLICY TM 1.7.1b: The City will support the development of new transit connections between FLL and the Port.

POLICY TM 1.7.2: Transit stations and stops should be located within walking distance of activity centers, and access routes for pedestrians and bicycles to transit should be as direct as possible, promoting both pedestrian and bicycle connectivity

POLICY TM 1.7.3: The City shall regularly evaluate transit stops within city limits to identify needs for improvements such as shade, ADA compliance, well-designed shelters, bicycle parking, route information, benches, waste receptacles, or the need for new transit stop locations.

POLICY TM 1.7.4: The City shall support the exchange of information between the Sun Trolley, Broward County Transit, the City, and the South Florida Regional Transportation Authority to identify transit user needs.

POLICY TM 1.7.5: The City shall evaluate and adopt, by 2020, a citywide Transit Master Plan.

POLICY TM 1.7.5a: As part of the Transit Master Plan, the City shall evaluate transit service areas and determine potential new routes to service Fort Lauderdale neighborhoods, including community bus service.

POLICY TM 1.7.5b: New community bus routes as feasible will be identified within the Plan. The City shall coordinate with Broward County and the Broward MPO in identifying Transportation Surtax monies to fund community buses.

Page: 10

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 11:48:40 AM -04'00'

POLICY TM 1.7.5b: The City shall perform an equity analysis of all existing and proposed new routes. The analysis should include consideration of Social Determinants of Health and their impacts upon vulnerable populations.
Policy TM 1.7.5c: Prioritize improvements based on vulnerable users, at risk populations, and locations with higher concentrations of these populations, including, but not limited to schools, after care facilities, affordable and senior housing sites, parks, and healthcare facilities.

OBJECTIVE TM 3.2: City Agencies and Regulatory Processes

Utilize City agencies and regulatory processes to ensure enhancements within the transportation network.

POLICY TM 3.2.1: Fort Lauderdale shall not issue a building permit, unless a corresponding Transportation Concurrency Satisfaction Certificate issued by Broward County has been presented and full compliance with Broward County Planning Council agreements have been met.

POLICY TM 3.2.2: Fort Lauderdale shall continue to coordinate and implement existing Development of Regional Impact (DRI) agreements and DRI development orders, consistent with changes to State growth management regulations in place for DRI development.

POLICY TM 3.2.3: Continue to partner with the Downtown Development Authority (DDA), [1]nd the Broward MPO on projects that enhance mobility.

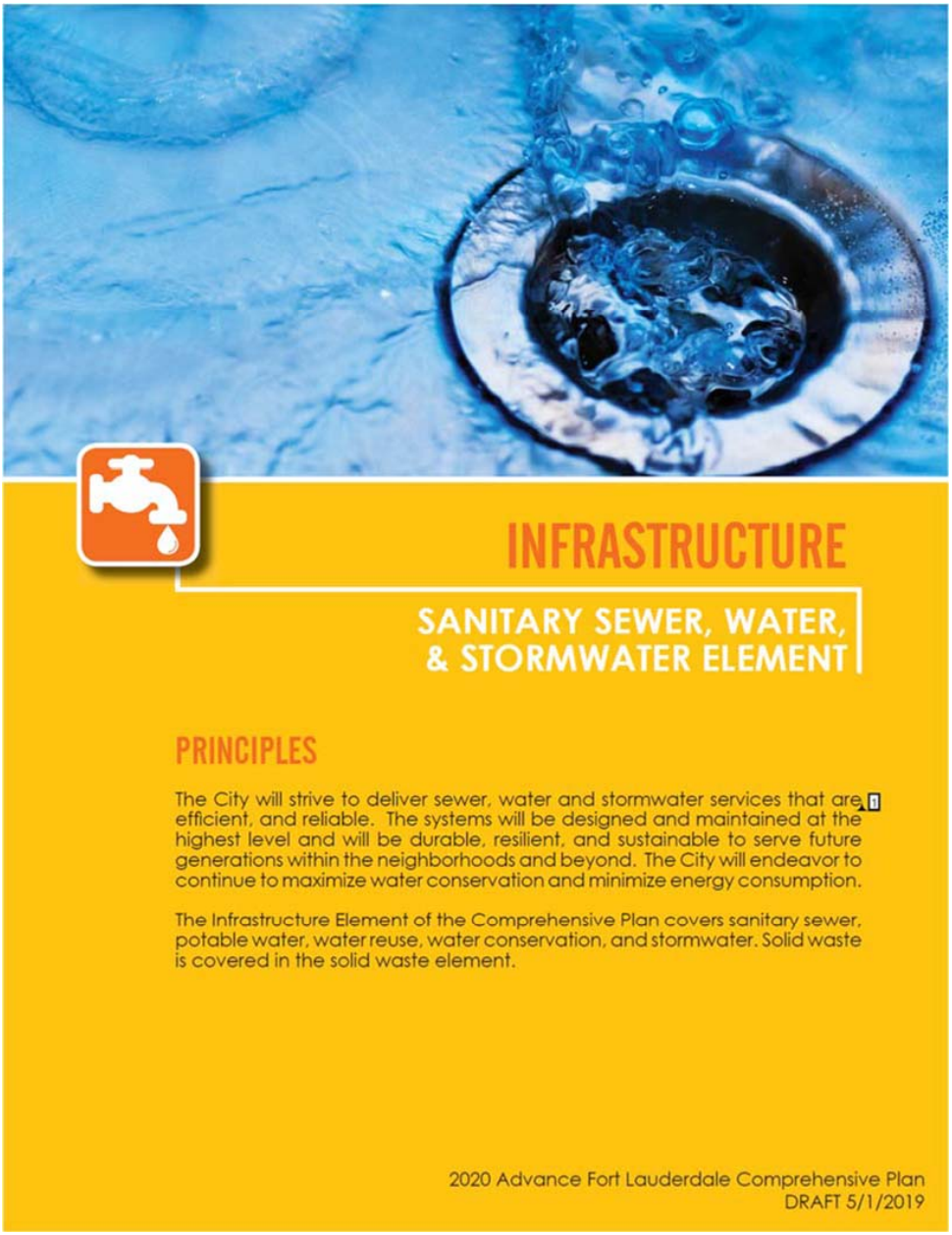
POLICY TM 3.2.4: The City will work with, FDOT, Broward MPO, and Broward County to identify and prioritize appropriate locations to install transportation improvements including, but not limited to, bicycle parking, crosswalks, lighting, bike lanes, traffic calming, and buffered sidewalks.

Page: 16

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 10:45:35 AM -04'00'
Fort Lauderdale Community Redevelopment Agency,

Public Works:
POLICY SWS 1.1.1: Infrastructure capital projects will be evaluated using the following criteria:

1. Meets federal, state or legal requirement;
2. Project feasibility;
3. Costs and sources of funds;
4. Reduces risk and improves urgent safety needs;
5. Relevant level of service and performance measures;
6. Addresses aging infrastructure needs and maintenance of existing facilities;
7. Project consistency with existing approved plans and projects;
8. Improves traffic, mobility, connectivity, pedestrian safety and cyclist safety;
9. Environmental benefits; and
10. Promotes or accelerates sustainable economic development.
11. Promotes or accelerates social equity, environmental justice, and overall improvement to the quality of life for historically marginalized, underserved, and under-represented individuals and places within the city.



Summary of Comments on Comp Plan - Stormwater and Sewer.pdf

Page: 1

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 12:00:10 PM -04'00'
equitable, sustainable,

GOALS, POLICIES, AND EVALUATION MEASURES

GOAL 1: To provide the City with an established method for evaluating and ranking infrastructure projects.

OBJECTIVE SWS 1.1: Evaluation Criteria

Provide specific evaluation criteria for the City.

POLICY SWS 1.1.1: Infrastructure capital projects will be evaluated using the following criteria:

1. Meets federal, state or legal requirement;
2. Project feasibility;
3. Costs and sources of funds;
4. Reduces risk and improves urgent safety needs;
5. Relevant level of service and performance measures;
6. Addresses aging infrastructure needs and maintenance of existing facilities;
7. Project consistency with existing approved plans and projects;
8. Improves traffic, mobility, connectivity, pedestrian safety and cyclist safety;
9. Environmental benefits; and
10. Promotes or accelerates sustainable economic development. [1]

POLICY SWS 1.1.2: The City will ensure facility needs will not exceed the City's capacity to fund capital improvements:

- Work with management and operational departments to assess and prioritize funding available for needs; and
- Deem public facilities adequately serve development.

POLICY SWS 1.1.3: Financing methods that may be used include:

1. General Fund Revenues
2. Enterprise Fund Revenues
3. General Obligation (GO) Bonds
4. Regulatory Fees
5. Special Assessments
6. Special Assessment Bonds
7. Revenue Bonds
8. Public Private Partnership
9. Energy Performance Contracts
10. Grants

GOAL 2: To develop and maintain an adequate wastewater collection and treatment system, which meets existing and projected needs of the City and adjacent users in the Central Wastewater Region.

OBJECTIVE SWS 2.1: Wastewater Service Provider

Provide wastewater service to Fort Lauderdale customers and adjacent jurisdictions within the Broward County Central Wastewater Region utilizing contracts and agreements.

Page: 2

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 12:22:31 PM -04'00'

11. Promotes or accelerates social equity, environmental justice, and overall improvement to the quality of life for historically marginalized, underserved, and under-represented individuals and places within the city.

Capital Improvements

POLICY CI 1.1.3: Capital projects will be evaluated using the following criteria:

1. Meets federal, state or legal requirement - Whether there is a federal, state, local mandate, grant, court order, judgment, or other requirement that the project must be completed.
2. Project feasibility - Whether there are obstacles to proceeding with the project (land acquisition, easements, approvals required, etc.)
3. Costs and sources of funds - Whether the project would impact the City's operating costs, debt service level, and/or whether the project would yield revenue.
4. Reduces risk and improves urgent safety needs - Whether the project reduces an immediate or future risk, addresses a public health and/or safety hazard, or addresses an urgent safety needs.
5. Relevant level of service and performance measures - Is the impact of the project measurable? Will completing the project improve key performance measures or result in efficiencies?
6. Addresses aging infrastructure needs and maintenance of existing facilities - Whether the project helps to repair or replace the City's aging infrastructure (e.g. bridges, seawalls, roads) or provides for capital maintenance of existing City facilities (e.g. community centers, swimming pools, or sports complex).
7. Project consistency with existing approved plans and projects - Whether the project is directly consistent with a Commission approved plan, advances the Strategic Plan, the Commission Annual Action Plan (CAAP), and/or the 2035 Community Vision Plan.
8. Improves traffic, mobility, connectivity, pedestrian safety and cyclist safety - Whether the project would result in filling mobility gaps, supporting more effective interconnectivity, and ensuring increased and safe accessibility to activities, events and locations (bikeway path, commuter rail).
9. Environmental benefits - Whether the project would address sea level rise, flooding, energy efficiency, water quality, water efficiency or other sustainability measures.
10. Promotes or accelerates sustainable economic development - Whether the project would directly result in capital investment, increased tax base, increased property values, or improved job opportunities.
11. Promotes or accelerates social equity, environmental justice, and overall improvement to the quality of life for historically marginalized, underserved, and under-represented individuals and places within the city.

5. **Relevant level of service and performance measures** - Is the impact of the project measurable? Will completing the project improve key performance measures or result in efficiencies?
6. **Addresses aging infrastructure needs and maintenance of existing facilities** - Whether the project helps to repair or replace the City's aging infrastructure (e.g. bridges, seawalls, roads) or provides for capital maintenance of existing City facilities (e.g. community centers, swimming pools, or sports complex).
7. **Project consistency with existing approved plans and projects** - Whether the project is directly consistent with a Commission approved plan, advances the Strategic Plan, the Commission Annual Action Plan (CAAP), and/or the 2035 Community Vision Plan.
8. **Improves traffic, mobility, connectivity, pedestrian safety and cyclist safety** - Whether the project would result in filling mobility gaps, supporting more effective interconnectivity, and ensuring increased and safe accessibility to activities, events and locations (bikeway path, commuter rail).
9. **Environmental benefits** - Whether the project would address sea level rise, flooding, energy efficiency, water quality, water efficiency or other sustainability measures.
10. **Promotes or accelerates sustainable economic development** - Whether the project would directly result in capital investment, increased tax base, increased property values, or improved job opportunities.

POLICY CI 1.1.4: The Capital Improvements Element will be reviewed annually. The Plan will include:

- Sources of funding
- Considerations of the Comprehensive Plan to develop the annual capital improvement plan
- Adherence to Level of Service Standards
- Estimate of costs
- Timing of program needs

POLICY CI 1.1.4a: The five-year capital improvement schedule of the Capital Improvement Element shall incorporate by reference the Community Investment Plan as adopted and as amended annually by the City Commission.

POLICY CI 1.1.4b: Top priority will be given to appropriate levels and schedules of recapitalization including quantity, replacement cost, life cycle and annual depreciation/recapitalization needs when developing budget recommendations for the Community Investment Plan.

POLICY CI 1.1.4c: Coordinate planning for City improvements with applicable government agencies.

POLICY CI 1.1.4d: Prioritize CIP projects based on hierarchy of program needs.

POLICY CI 1.1.5: Examples of financing methods that may be used include:

1. **General Fund Revenues** - General tax revenues, transfers in from other funds, and other receipts that are not allocated by law or contractual agreement used for new construction as well as improvements to infrastructure primarily for community-wide benefit and use, such as municipal buildings and parks.

Summary of Comments on Comp Plan - Capital Improvements.pdf

Page: 3

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 12:21:31 PM -04'00'

11. Promotes or accelerates equity, environmental justice, and overall improvement to the quality of life for historically marginalized, underserved, and under-represented individuals and places within the city.

Housing:

POLICY HS 1.2.6: Continue to support Fort Lauderdale Housing Authority programs, including Section 8, housing choice voucher administration, homeownership programs, public housing construction and management, and self-sufficiency programs including their home-ownership programs and the StepUP Apprenticeship program.

POLICY HS 1.2.12: Utilize job training, apprenticeship programs, and job creation to improve the economic status of residents as a partial solution to affordable housing concerns. POLICY HS 2.1.6: Ensure that planning and land use still provides for healthy neighborhoods including easy accessibility to food, locally determined needs for goods and services and amenities that encourage physical activity and collaboratively address the Social Determinants of Health.

HOUSING ELEMENT

OBJECTIVE HS 1.2: Affordable Housing Administration

Administer programs for the creation of affordable homeownership and rental housing for very low, low and moderate income residents and maintenance of existing affordable housing, including structural and aesthetic improvements and the elimination of substandard dwelling conditions.

POLICY HS 1.2.1: Continue to utilize Housing and Urban Development (HUD) HOME Investment Partnerships Program (HOME) State Housing Initiatives Program (SHIP) funds, and the Affordable Housing Trust Fund to support:

- New construction of rental housing
- Owner-occupied home rehabilitation
- Special needs home rehabilitation
- Purchase assistance
- Impact fee mitigation
- Disaster repair and mitigation
- Demolition and reconstruction
- Rapid re-housing program

POLICY HS 1.2.2: Continue to identify opportunities for nonprofit organizations to receive funding from the City's federal allocations from the Housing and Urban Development (HUD) HOME Investment Partnerships Program (HOME) to acquire and/or renovate existing rental housing stock for occupancy by very-low, and low-income households.

POLICY HS 1.2.3: Continue to utilize Community Development Block Grant (CDBG) for minor home repairs, public services and infrastructure improvements.

POLICY HS 1.2.4: Increase housing stability of persons living with HIV/AIDS and their families and reduce homelessness among such persons, thereby facilitating increased access to care through Housing Opportunities for Person with Aids program (HOPWA).

POLICY HS 1.2.5: Continue coordination and support of the Broward County Continuum of Care (CoC) Homeless Program, the Homeless Collaborative, and a Housing First approach to homelessness.

POLICY HS 1.2.6: Continue to support Fort Lauderdale Housing Authority programs, including Section 8, housing choice voucher administration, homeownership programs, ~~public~~ housing construction and management, and self-sufficiency programs.

POLICY HS 1.2.7: Implement an inclusionary zoning ordinance to require construction of affordable housing with new residential construction in regional activity centers and along major transit corridors.

POLICY HS 1.2.8: Support the construction of diverse affordable housing types to include single-family detached, attached and duplex housing, multi-family and manufactured homes.

POLICY HS 1.2.9: Review ability to reduce transportation costs through location of affordable housing in proximity to transit.

POLICY HS 1.2.10: Review opportunities to use older and historic houses for affordable housing opportunities.

Summary of Comments on Comp Plan - Affordable Housing.pdf

Page: 3

Number: 1 Author: Scott Subject: Cross-Out Date: 10/6/2019 12:28:10 PM -04'00'
affordable

Number: 2 Author: Scott Subject: Inserted Text Date: 10/6/2019 12:31:37 PM -04'00'
including their home-ownership programs and the StepUP Apprenticeship Program.

POLICY HS 1.2.11: Design mixed-income affordable housing programs that ensure the geographical distribution of affordable housing to discourage the over concentration of affordable housing units.

POLICY HS 1.2.12: Utilize job training and job creation to improve the economic status of residents as a partial solution to affordable housing concerns.

OBJECTIVE HS 1.3: Incentivize Construction and Development of Affordable Housing

The City shall develop programs to incentivize the construction and development of affordable housing throughout the City.

POLICY HS 1.3.1: The City shall continue to review financial incentives to assist the private sector in the provision of affordable housing including, but not limited to:

- Decrease in property tax assessment
- Tax increment financing (TIF)
- Municipal land
- Redistributed CRA funds
- Application fee reductions
- Other financing that incentivizes the development of affordable and workforce housing

POLICY HS 1.3.2: The City shall expedite the processing of building permits for Affordable, Attainable and Workforce Housing Units.

POLICY HS 1.3.3: The City will designate an ombudsman to assist developers and builders of affordable housing to expedite the planning, zoning and permitting processes and procedures and to apply for eligible developer incentives.

POLICY HS 1.3.4: Continue to allow reduced parking requirements for affordable housing.

POLICY HS 1.3.5: Continue to review the ULDR for amendments to incentivize creation of affordable housing.

POLICY HS 1.3.6: Review policies, procedures, ordinances, regulations or plans that would increase the cost of housing as required by Florida Statutes.

POLICY HS 1.3.7: The City shall continue to maintain an inventory of City owned property available for use as affordable housing as required by Florida Statutes.

POLICY HS 1.3.8: Continue to work with private and public sector partners to acquire vacant parcels and construct new single-family homes for very-low- income, and low income households that are first-time home buyers.

POLICY HS 1.3.9: Continue to assemble vacant lots as they become available to the City, through foreclosure, donations, and acquisition, to provide for the development of new single-family homes on scattered sites.

POLICY HS 1.3.10: The City shall periodically evaluate minimum unit sizes in its ULDR to determine impact on the availability of affordable housing and amend regulations if needed to enhance local housing availability and affordability.

Page: 4

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 12:32:57 PM -04'00'
, apprenticeship programs,

OBJECTIVE HS 1.4: Housing for Vulnerable Communities

The City shall continue to ensure equity in affordable housing programs and provide for underserved and vulnerable populations.

POLICY HS 1.4.1: City affordable housing policies will consider the needs of the very low, low, and moderate income senior and special needs population.

POLICY HS 1.4.2: Continue to assess regulation of the placement of group homes by addressing maximum densities and the number of group homes and foster care facilities allowed within a geographically defined area.

POLICY HS 1.4.3: Provide relocation assistance to City residents who are temporarily or permanently displaced.

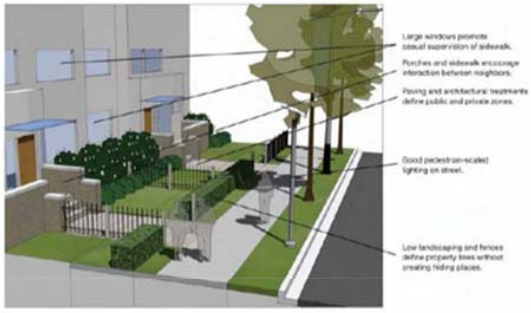
POLICY HS 1.4.4: Mobile home parks and manufactured homes shall be allowed on appropriately zoned sites and in accordance the ULDR.

GOAL 2: Be a community of strong, beautiful and healthy neighborhoods.

OBJECTIVE HS 2.1: Neighborhood Livability

Preserve and revitalize the livability and sense of place of Fort Lauderdale neighborhoods.

POLICY HS 2.1.1: Develop and implement neighborhood design guidelines based on the unique characteristics of neighborhoods.



POLICY HS 2.1.2: Continue to utilize intensity and density standards as provided in the Future Land Use Element to preserve existing single-family uses.

POLICY HS 2.1.3: Encourage the conservation and reuse of historic residential resources based on the cultural and historic significance to the City.

POLICY HS 2.1.4: Promote energy efficiency, use of alternative energy, water conservation and climate adaptation methods in the construction and rehabilitation of new and existing buildings.

POLICY HS 2.1.5: Incorporate Crime Prevention through Environmental Design (CPTED) to ensure that issues of community safety and crime prevention are adequately considered in land use, development and redevelopment activities to aid the integration of safety and security concerns throughout the development review process for all residential projects.

POLICY HS 2.1.6: Ensure that planning and land use still provides for healthy neighborhoods including easy accessibility to food, locally determined needs for goods and services and amenities that encourage physical activity.

POLICY HS 2.1.7: Through the Community Enhancement and Compliance Division, collaborate residential neighbors to foster the preservation and revitalization of our neighborhoods, prevent blight, and educate our neighbors on property maintenance standards.

Page: 5

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 12:36:33 PM -04'00'
and collaboratively address the Social Determinants of Health.

Economic Development:
POLICY ED 1.2.4a: Promote the development of walking, driving, and bicycling tours that include as destinations, Fort Lauderdale's historic areas and buildings (such as Himmarshee and Historic Sistrunk) and special environments, including local museums, urban trails, and public art.
POLICY ED 2.5.1c: Promote and identify internships, apprenticeships and training for green sector jobs through Broward County School District magnet programs, the Housing Authority's StepUP Apprenticeship program, the colleges and universities, and green technology companies.

ECONOMIC DEVELOPMENT ELEMENT

GOALS AND POLICIES

GOAL 1: Enhance Fort Lauderdale's stature as a global, business friendly destination through the development of a business identity, enhanced marketing, branding, and support for enhanced local activities and tourism development.

OBJECTIVE ED 1.1: Enhance City's Business Identity

Develop a City business identity through branding and marketing.

POLICY ED 1.1.1: The City of Fort Lauderdale shall establish a City brand and business identity, inclusive of considerations for a brand statement, tagline, and visual identity as appropriate, as part of a Citywide marketing strategy.

POLICY ED 1.1.2: Seek ways to utilize enhanced branding and marketing to reinforce local neighborhood and cultural identities.

POLICY ED 1.1.3: The City shall include social and entertainment options, including the nighttime economy, as appropriate, as part of its overall branding to attract both tourists and workers.

OBJECTIVE ED 1.2: Tourism Support

Encourage investment in the tourism industry and encourage the location of trade shows and other special events in Fort Lauderdale.

POLICY ED 1.2.1: Provide business incentive programs for private, tourist-related development projects which offer good employment opportunities with self-sufficiency wages, training, and programs that result in career ladders for employees.

POLICY ED 1.2.2: Support destination attractions and landmark development in Fort Lauderdale that enhance tourism trade in the City, including but not limited to, natural resource destinations such as the beach, commercial recreational attractions, sporting events, convention and meeting facilities, and the cruise ship industry.

POLICY ED 1.2.3: Support the development of business attractions that are compatible with historic districts and buildings.

POLICY ED 1.2.4: Collaborate with tourism industry representatives to design projects that enhance Fort Lauderdale's cultural and natural amenities.

POLICY ED 1.2.4a: Promote the development of walking, driving, and bicycling tours that include as destinations, Fort Lauderdale's historic areas and buildings (such as Himmarshee and special environments, including local museums and public art.

Fort Lauderdale Comprehensive Plan 2

Summary of Comments on Comp Plan - Economic Development.pdf

Page: 2

Number: 1	Author: Scott	Subject: Inserted Text	Date: 10/6/2019 12:52:45 PM -04'00'
and Historic Sistrunk			
Number: 2	Author: Scott	Subject: Inserted Text	Date: 10/6/2019 12:49:29 PM -04'00'
, urban trails			

POLICY ED 2.3.2a: Assist existing business owners through providing information on accessing programs that can provide financial assistance and business consulting services. Such programs include Small Business Administration loans, façade renovation, and redevelopment assistance available within the City.

POLICY ED 2.3.3: Promote the growth of local small or entrepreneurial businesses through support for increased development of co-working facilities and business incubators within the City, as needed.

POLICY ED 2.3.3a: The City will consider, where applicable, public/private partnerships to provide incubation spaces for small business.

POLICY ED .3.3b: The City shall evaluate opportunities to include incentives to encourage property owners and building owners to offer affordable spaces for start-ups and small businesses.

POLICY ED 2.3.4: Enhance funding opportunities for local businesses by supporting community-based lending initiatives and equity programs.

POLICY ED 2.3.5: Recognize that artists can make a significant contribution to the local economy as small businesses, and support efforts, including the FAT Arts Village, to ensure that Fort Lauderdale's artist communities continue to thrive within the City.

OBJECTIVE ED 2.4: Workforce Development

Support Workforce Development to provide for economic mobility and a diverse labor pool to enhance Fort Lauderdale's attractiveness for businesses to locate within the City.

POLICY ED 2.4.1: Strengthen the City's role in workforce development organizations that:

- Provide adult and youth workforce development;
- Adult retraining; and
- Targeted services for unrepresented and under-represented groups.

POLICY ED 2.4.2: Continue to support programs that address potential job gaps in growing industries, and current gaps throughout all industries, to match job training and workforce development with employment needs.

POLICY ED 2.4.3: Support efforts to provide labor market information from data sources and industry sectors to local educational institutions, training agencies, and the public.

POLICY ED 2.4.4: Continue to enhance and promote arts and culture activities that raise the quality of life, in order to continue to attract creative-class workers, living wage employers, and tourists.

POLICY ED 2.4.5: Support employability development and entry-level and career employment efforts for economically disadvantaged youth and adults, historically disadvantaged groups, women, individuals with disabilities and the homeless.

POLICY ED 2.4.6: Work with employers, nonprofits, educational institutions and social service agencies to create opportunities for people in training, retraining or working to meet their dependent care needs.

Page: 5

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 12:59:24 PM -04'00'
, apprenticeships

OBJECTIVE ED 2.5: Vocational Education

Coordinate with Broward County Public Schools and local institutions of higher learning to encourage vocational training opportunities and research and development within the City and region.

POLICY ED 2.5.1: Encourage the provision of appropriate educational opportunities, programs, and facilities to meet business and industry needs.

POLICY ED 2.5.1a: The City shall encourage the development of after school programs that focus on educational enrichment and skills training.

POLICY ED 2.5.1b: Support efforts that connect youth to internships and other education and career opportunities.

POLICY ED 2.5.1c: Promote and identify internships, apprenticeships and training for green sector jobs through Broward County School District magnet programs, the colleges and universities, [1] and green technology companies.

POLICY ED 2.5.1d: The City shall explore opportunities to encourage the development of vocational programs, including those which support the marine, life sciences, and high-tech industries.

POLICY ED 2.5.1e: Explore how the Fort Lauderdale Executive Airport can be leveraged to enhance and extend STEM/aviation programming in a way that prepares students for success at every level of their academic career and for high demand jobs in our local economy.

POLICY ED 2.5.2: Encourage education and training programs that encourage high-tech and research and development businesses and industries to locate in Fort Lauderdale.

POLICY ED 2.5.3: The City shall explore opportunities to encourage the collaboration of business, labor, civic and social service agencies, libraries, and educational institutions to develop and expand education and training programs targeted to business needs, especially for high-demand science, including life sciences, technology, engineering, and mathematics skills.

POLICY ED 2.5.4: Encourage institutions of higher education toward commercialization of research innovations to fuel the growth of start-ups.

POLICY ED 2.5.5: The City shall seek opportunities to improve linkages between industry clusters and research institutions, hospitals, educational institutions, and other technology-based businesses, including the encouragement and support of research and development opportunities to enhance and support marine, tourism, and high-tech and life sciences industries.

POLICY ED 2.5.6: Encourage, where feasible, the location of institutions of higher learning within the City, including entrepreneurship satellite programs, to provide increased access for local residents and businesses.

Page: 6

Number: 1 Author: Scott Subject: Inserted Text Date: 10/6/2019 12:56:16 PM -04'00'
the Housing Authority's StepUP Apprenticeship program,

RE: 2020 Advance Conservation Element
DATE: 10/16/2019
FROM: Richard Brownscombe

"We recently had Jonathan Burgess, a landscape architect, speak to the Broward Chapter of the Florida Native Plant Society about the Sustainable SITES Initiative. On this page is the free "SITES Client Deck," a power point introduction that may be useful explaining what Sustainable SITES is. In the presentation they monetize sustainable landscaping because the value of sustainable approaches to development are undervalued or not valued at all under our current ways of doing business. That is a mistake, of course. It seems such an organized and fair way to expect and evaluate sustainable building standards. Most people know the LEED standards. I hope we are expecting and applying them. But fewer people are aware of the very similar standards applied to landscaping. I urge the City to expect, incentivize, and encourage (if not ready to require) the use of LEED and Sustainable SITES standards going forward. It seems a relatively easy way for the City to get a lot accomplished toward the improvement of development toward a sustainable City (not just words, but the real deal)."