Assessment of the Potential of the Monon Site for Sustainable Urban Development

Examination and Panel Discussion of SINBRA Exercise

Conducted in Indianapolis, Oct. 27, 2011 at The Project School, Indianapolis, IN USA

April 19, 2012

Sustainable Land Re-Use Tools for Practitioners

US EPA ORD National Risk Management Research Laboratory

26 W Martin Luther King Drive, Room 130/138, Cincinnati, OH 45268

by

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(on behalf of Wolfgang Müller & Prof. Dr. Ruth Rohr Zänker)

Agenda

- Goal of the evaluation and purpose of the assessment tool
- Elements of the assessment tool
- Information for the assessment tool
- Implementation of the assessment

Goal of the Evaluation

- To demonstrate to experts and the community the potential of re-use of a brownfield site
- To support discussion about the appropriate kind of re-using brownfield sites
- To stress goals of sustainability in the wide range of possibilities how a brownfield site should be re-used

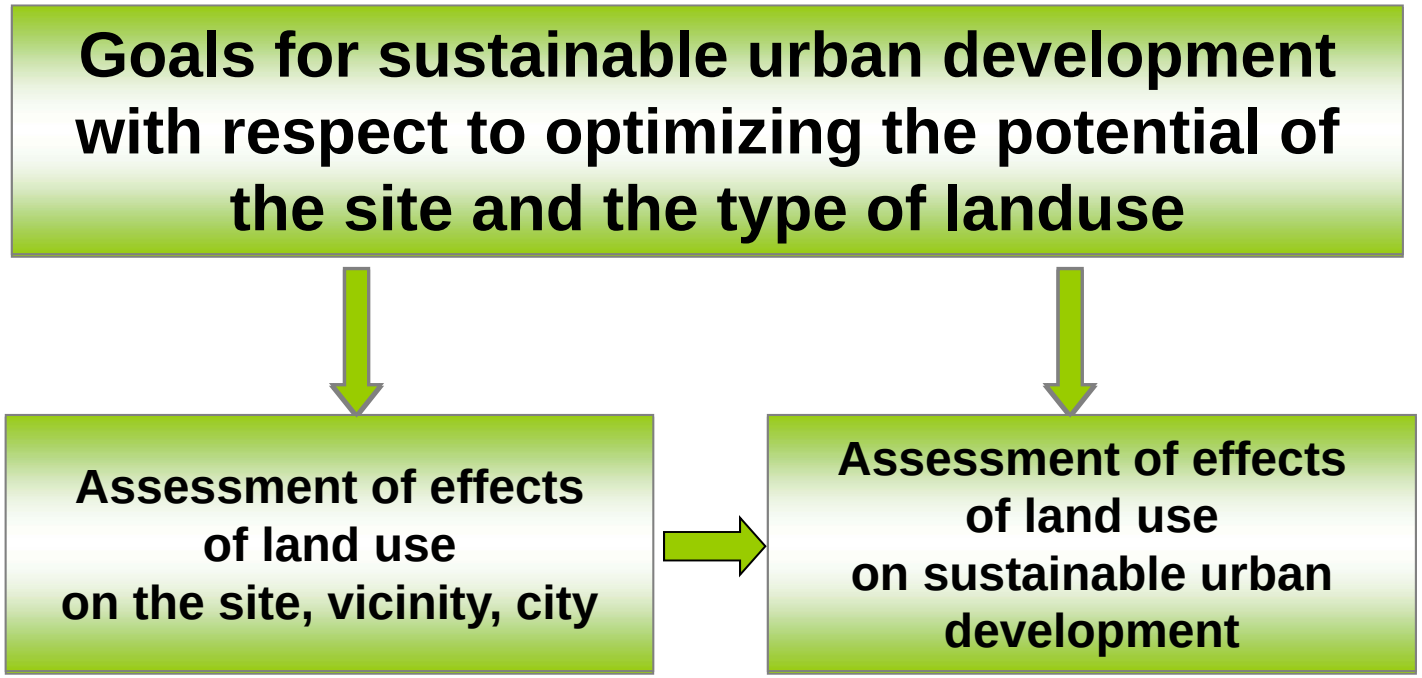
Objectives of the Assessment Tool

- To assess the potential of a brownfield-site for sustainable urban development
- To demonstrate the benefits and disadvantages of different types of land-use on a brownfield site with respect to goals of sustainable urban development
- To find the type of land-use for a brownfield site that is most compatible with goals of sustainable urban development

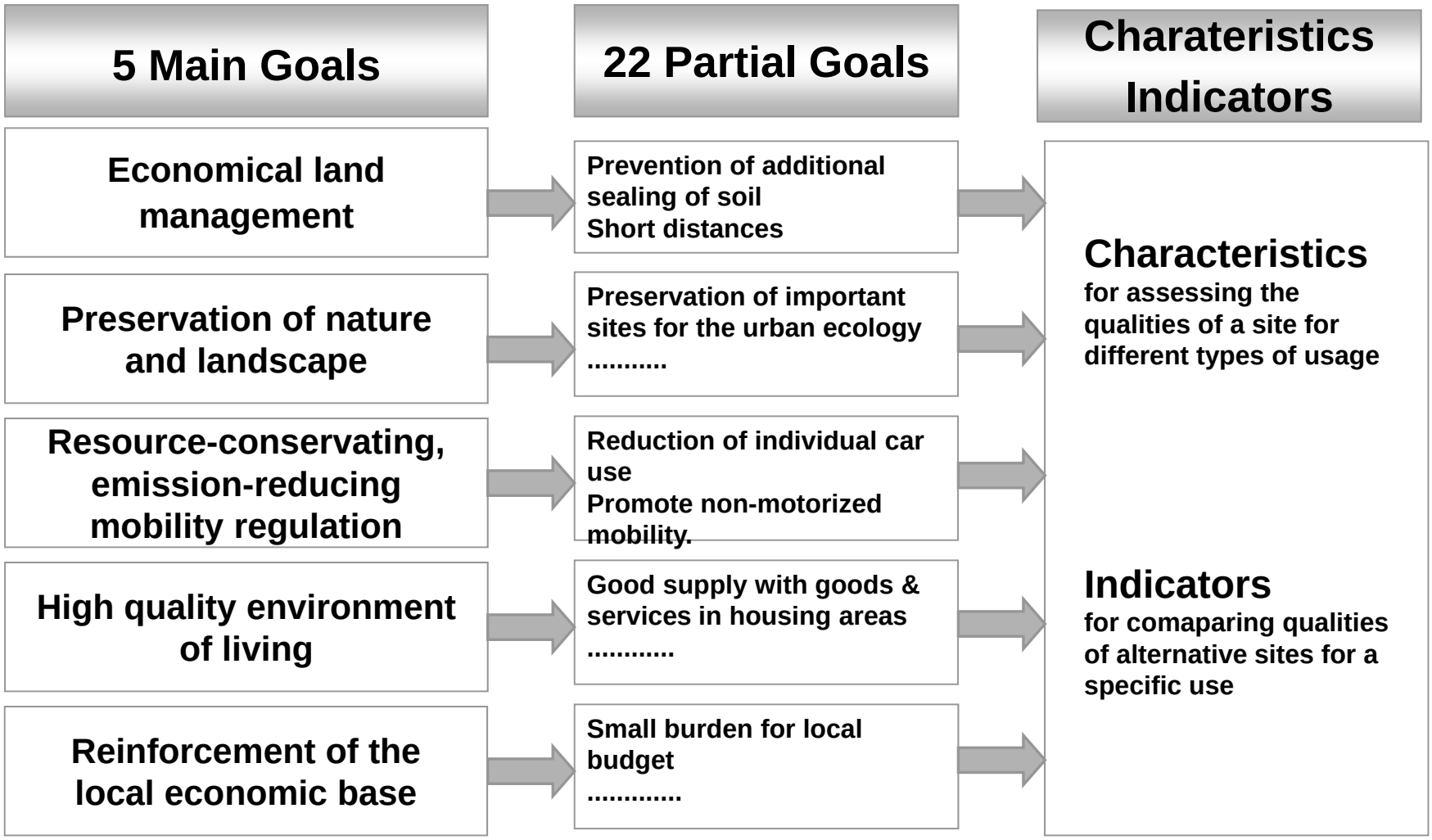
The SINBRA Tool Explained

- To assess the potential of a brownfield-site for sustainable urban development
- To demonstrate the benefits and disadvantages of different types of land-use on a brownfield site with respect to goals of sustainable urban development
- To find the type of land-use for a brownfield site that is most compatible with goals of sustainable urban development

Elements of the Assessment Tool



Goals for sustainable urban development



Method of the assessment procedure

Combination of

- ➡ site characteristics representing goals of sustainable urban development
- ➡ effects of different types of landuse on the site and on its vicinity

Table 3: Site characteristics and types of land use for the assessment of sustainability potential

			Types of land use						
Site characteristic	Weighting coefficient	Specification	I. Residential	II. Local Services	III. Public green	IV. Small enterprises, service industries	V. Emission-generating industries, logistics	VI. Large-scale business centers	VII. Mono-functional facilities with large open space
Filter: Site smaller than 5 acres			suitable					not suitable	
1. General goal: Economical land management									
Sub-goal 1.1: To provide short distances through complementary land uses									
1.1.1 Residential population in the surrounding area	10	yes	0	+1	+1	+1	0	0	0
		no	0	-1	0	0	0	0	0
1.1.2 Public green within walking distance	10	yes	+ 1	0	0	0	0	0	0
		no	0	0	0	0	0	0	0
1.1.3 Small-scale businesses and services within walking distance	10	yes	+1	0	0	0	0	0	0
		no	0	0	0	0	0	0	0
1.1.4 Adjacent land uses with heavy emissions	20	yes	-1	0	-1	0	0	0	-1
		no	0	0	0	0	0	0	0
Sub-goal 1.2: To avoid additional sealing of soil									
1.2 Site shows minor sealing (<40%)	10	yes	0	0	+1	-1	-1	-1	+1
		no	0	0	-1	0	0	0	-1
Sub-goal 1.3: To promote development within settled areas									
1.3 Location within the settlement area	40	yes	+1	+1	0	+1	0	0	0
		no	-1	-1	0	-1	0	0	0
2. General goal: Preservation of nature and the landscape									
Sub-goal 2.1: To preserve sites that are important for the urban ecology									
2.1.1 Part of the local habitat network	40	yes	-1	-1	0	-1	-1	-1	-1

Method of the assessment tool

Type V „Emitting industries and industries with a high volume of traffic“

..... has negative effects on sites

➡ with little soil sealing

➡ which are part of a wildlife corridor

➡ with precious trees or plants

..... has positive effects on sites

➡ with access to highways

➡ with high-capacity technical infrastructure

Types of landuse

- Type I — Housing
- Type II — Local supply and residential infrastructure
- Type III — Parks, sports fields and playgrounds
- Type IV — Small enterprise and service industries
- Type V — Emitting industries and industries with a high volume of traffic
- Type VI — Large scale enterprises serving regional customers and beyond (shopping malls, sports arenas)
- Type VII — Complex monofunctional facilities (hospitals, hotels, campuses) with large parts of open space

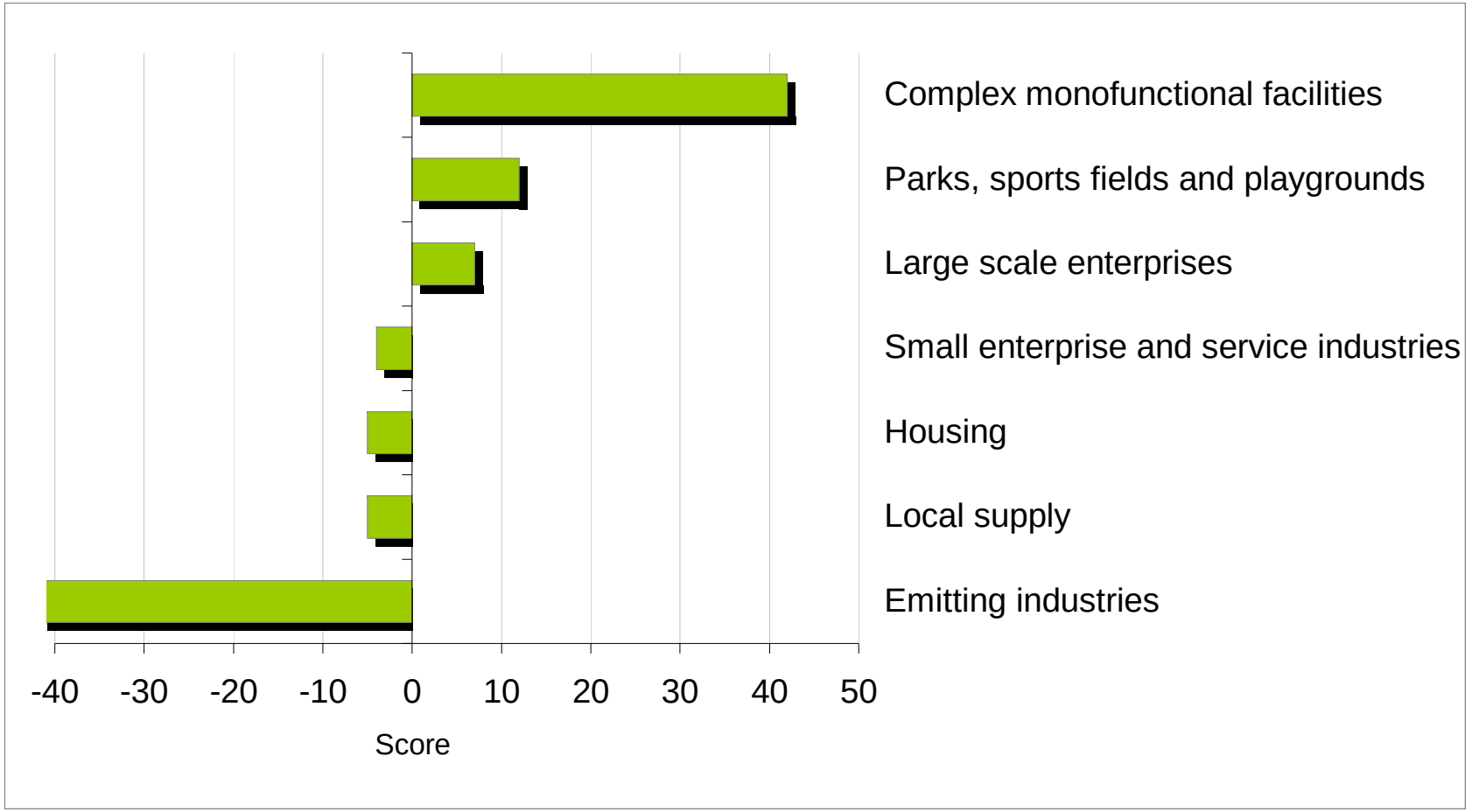
Information for Input

➡ **Knowledge about site characteristics representing the goals of sustainable urban development**

- Economical land management
- Preservation of nature and landscape
- Emission-reducing mobility regulation
- High quality environment of living
- Reinforcement of the local economic base

Assessment Results

Ranking of Types of Landuse



How do we proceed with the assessment

- Two groups independently assess the site potential
- Each group has to agree on their assessment
- Presentation of results and discussion of differences

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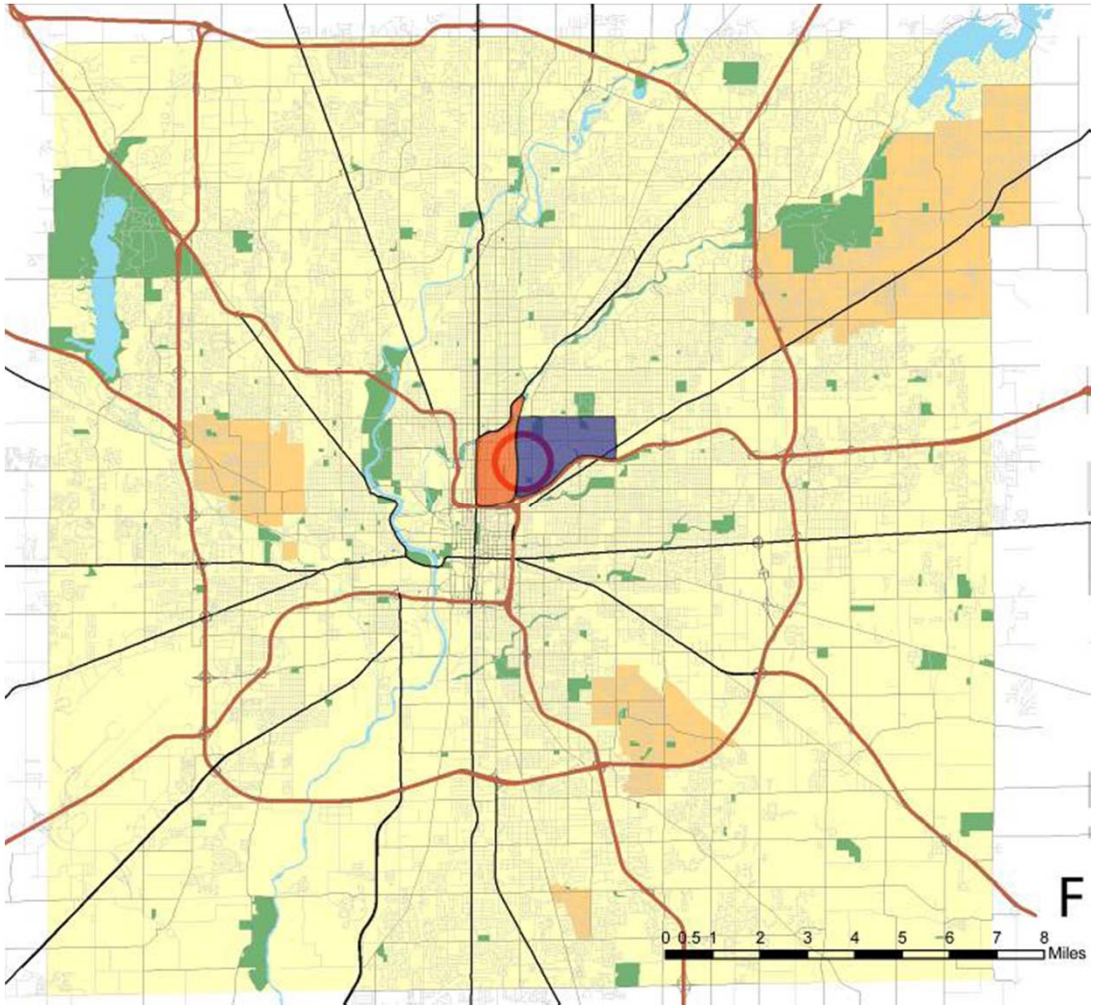
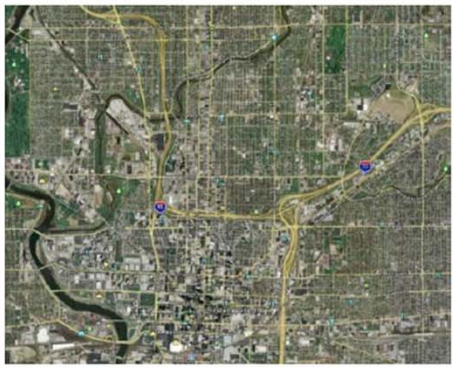
Sub-goal 1.1: To provide short distances through complementary land uses									
1.1.1 Residential population in the surrounding area	10	yes	0	+1	+1	+1	0	0	0
		no	0	-1	0	0	0	0	0
1.1.2 Public green within walking distance	10	yes	+ 1	0	0	0	0	0	0
		no	0	0	0	0	0	0	0
1.1.3 Small-scale businesses and services within walking distance	10	yes	+1	0	0	0	0	0	0
		no	0	0	0	0	0	0	0
1.1.4 Adjacent land uses with heavy emissions	20	yes	-1	0	-1	0	0	0	-1
		no	0	0	0	0	0	0	0
Sub-goal 1.2: To avoid additional sealing of soil									
1.2 Site shows minor sealing (<40%)	10	yes	0	0	+1	-1	-1	-1	+1
		no	0	0	-1	0	0	0	-1
Sub-goal 1.3: To promote development within settled areas									
1.3 Location within the settlement area	40	yes	+1	+1	0	+1	0	0	0
		no	-1	-1	0	-1	0	0	0
2. General goal: Preservation of nature and the landscape									
Sub-goal 2.1: To preserve sites that are important for the urban ecology									
2.1.1 Part of the local habitat network	40	yes	-1	-1	0	-1	-1	-1	-1
		no	0	0	0	0	0	0	0

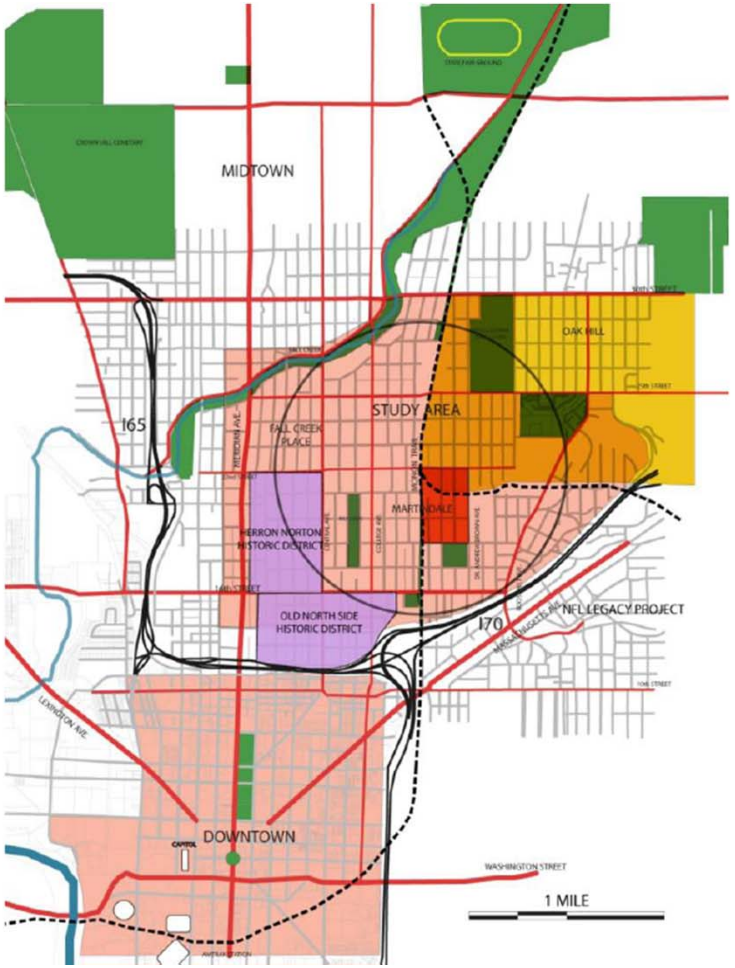
SINBRA Tool Exercise – The Monon Site Area

- 2.5 miles from city center
- Adjacent to successful 15.6 mile Monon Greenway Trail (>1.2m users/year)
- Nexus of assets & Needs



SINBRA Tool Exercise – The Monon Site Area

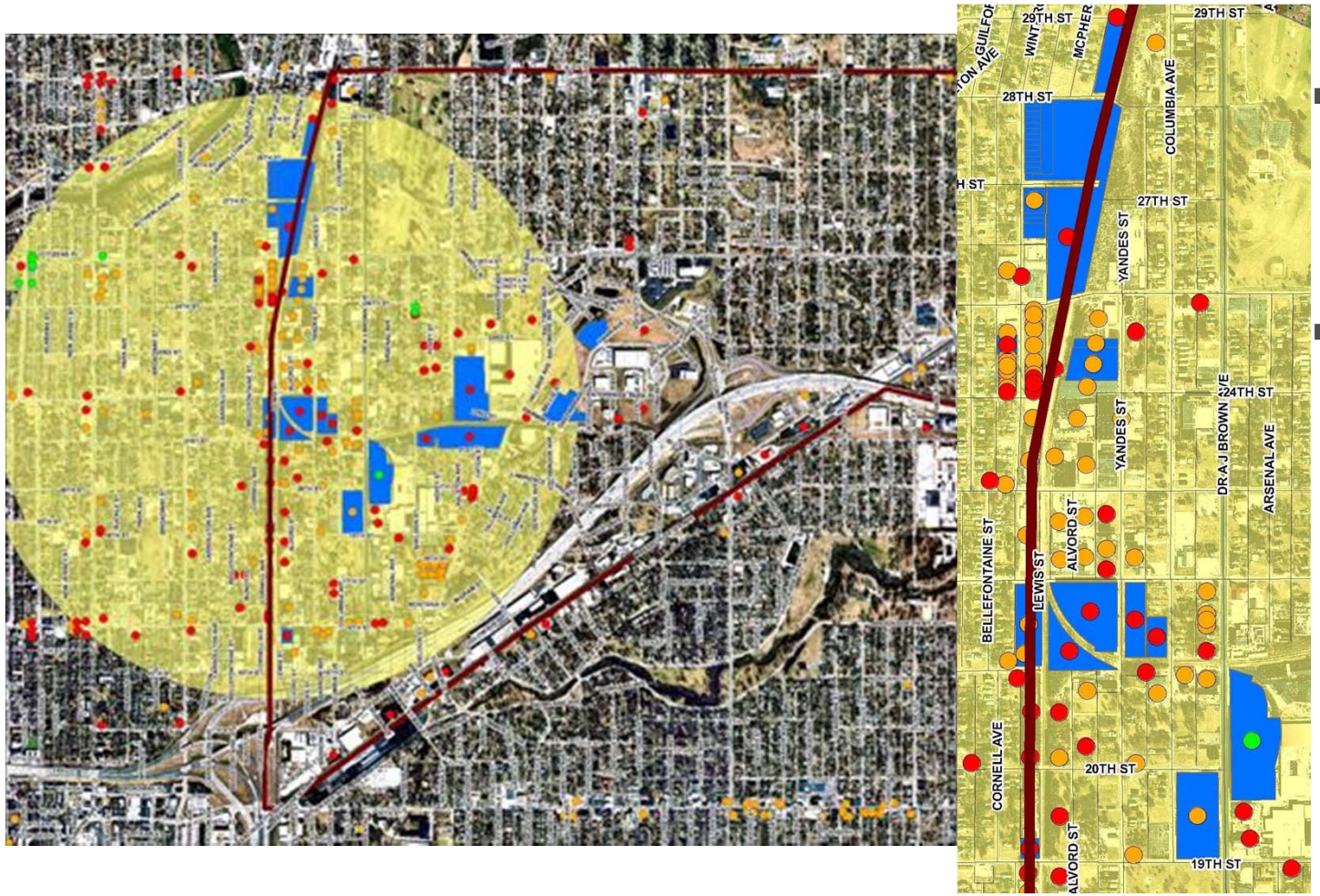




- 2.5 miles from city center
- Adjacent to successful 15.6 mile Monon Greenway Trail (>1.2m users/year)
- Nexus of assets & Needs

The Monon Site is Located at 1100 E. 25th Street, Indianapolis, IN

SINBRA Tool Exercise – The Monon Site Area

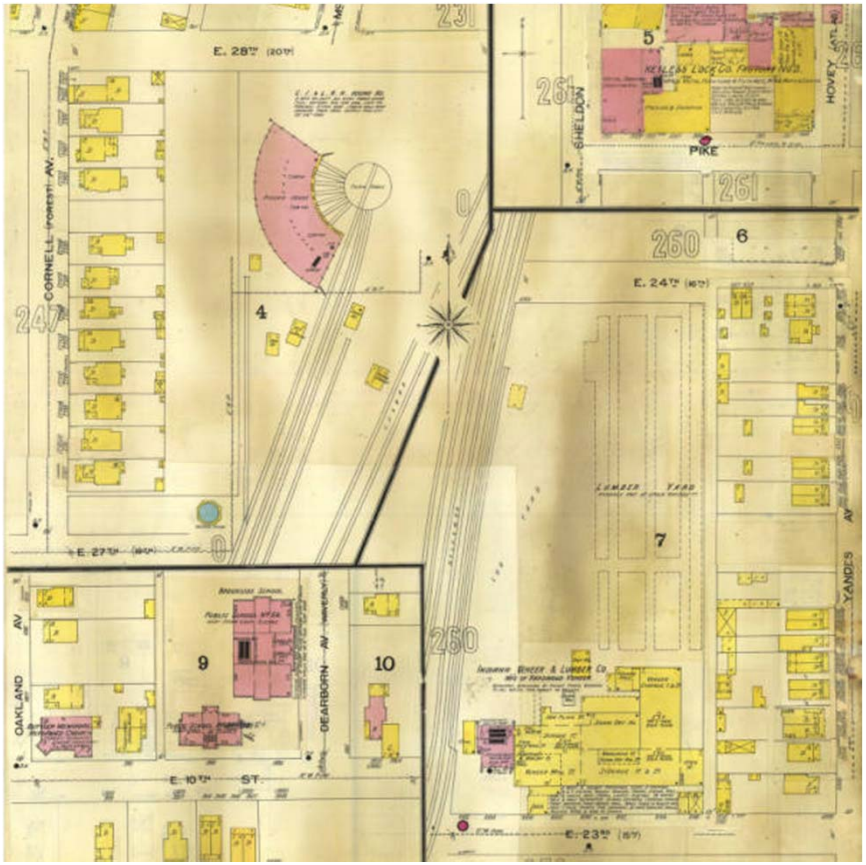


- Highest concentration of brownfield sites in Indianapolis
- Legacy of Industrial past nestled with residential (and now vacant sites)

Smart Growth District – Indianapolis (HUD/DOT/EPA Sustainable Communities Partnership Pilot)

SINBRA Tool Exercise – The Monon Site

- 15 acre (6.1ha) former abandoned urban rail maintenance yard acquired by City of Indianapolis in connection with greenway development of former Monon Rail line.
- Prior reuse plans for youth golf training academy development.
- Funding complications
- Brownfield Redevelopment Program charged with preparing the site for reuse
- Recreation reuse ready
- Urban agriculture reuse ready



SINBRA Tool Exercise – The Monon Site

- Historic use along Monon Rail line serving legacy industrial development
- Legacy of rail maintenance related contamiantion and urban infill soils.

Historic Aerial Photo from 1950s

SINBRA Tool Exercise – The Monon Site

- 2006 Aerial View
- Site received soil import from two other parks projects

SINBRA Tool Exercise – The Monon Site (Before 2011 Clearing & EPA Safer Soils Effort)

- 2006-2011 Conditions at site after soil import

SINBRA Tool Exercise – The Monon Site (After Clearing & EPA Innovation Grant)

- Impacted soil pile removal
- Football field soil imported

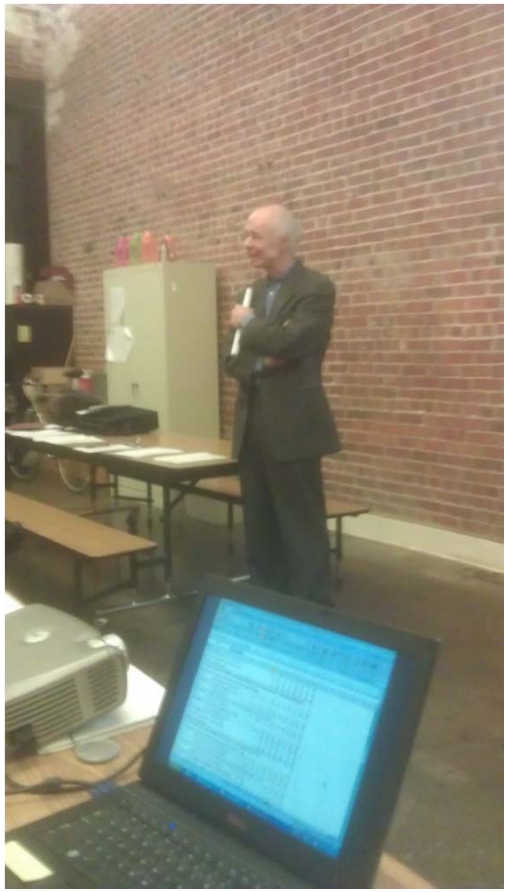
STADTREGION

SINBRA Tool Exercise – The Monon Site (After Clearing & EPA Innovation Grant)

- $400,000 EPA assistance to cap the site.
- Prepared for 12 acres recreation ready soil & 4 acres urban ag ready soil
- EPA TAB Test Plots

SINBRA – The Monon Site (Implementing the Exercise)

- 10/27/2011 Wolfgang Müller of StadtRegion explains and implemnts the SINBRA exercise at The Project School Indianapolis, 3 blocks from the subject site.



SINBRA – The Monon Site (Implementing the Exercise)

- Goal: Apply SINBRA assessment tool to site and area to determine effects of different kinds of land use
- Compare degree of effects that support or impair sustainable urban development
- 23 site characteristics; (5 major goals; 17 sub-goals)

SINBRA – The Monon Site (Implementing the Exercise)

- Assessment Panel: The SINBRA tool was applied for use with a panel of 18 local resident experts, planners, investors and citizen organization representatives.
- Exercise implemented in one session, rather than breaking into groups.
- 5 general goals weighted equally: (20%, but can change)
  - Economical Land Management
  - Preservation of Nature & Landscape
  - Mobility Management That Saves Resources and Reduces Emissions
  - High Quality Enviornment for Housing & Living
  - Strengthening the Local Economy
- Müller questioned polled the group for Yes or No answers to questions related to sub-goals.

SINBRA – The Monon Site (Implementing the Exercise)

- The resulting scores were „automatically“ assigned through the SINBRA spreadsheet based tool
- Outcome: Ranking of alternative types of land use based on values assigned from answers to YES or NO questions.
- Total Score for each of the 7 Main Types of Potential Land Use Options Derived
- Results:
  - Reuse of the Monon Site itself supports sustainable development (surprie?)
  - Each of 7 types of land use supports goals of sustainable urban development
  - No type of reuse would impede sustainable urban development [Different than experience with SINBRA in Germany]
  - No unique solution / preferred solution unearthed

SINBRA – The Monon Site (Implementing the Exercise)

Results:

- Flexibility to adjust values assigned to each of the 5 main goals, i.e. increasing the weight of „Strengthening the Local Economy“ can allow for differences in political context or societal goals based on community needs and norms.
- User must ensure that none of the general goals are reduced to a value of 0%, else „sustainable“ reuse as defined would be subverted.
- Based on input from the Panel changes to answers for particular questions were entered, and the SINBRA tool was re-applied. These alternate run results were also telling.

Assessment Results

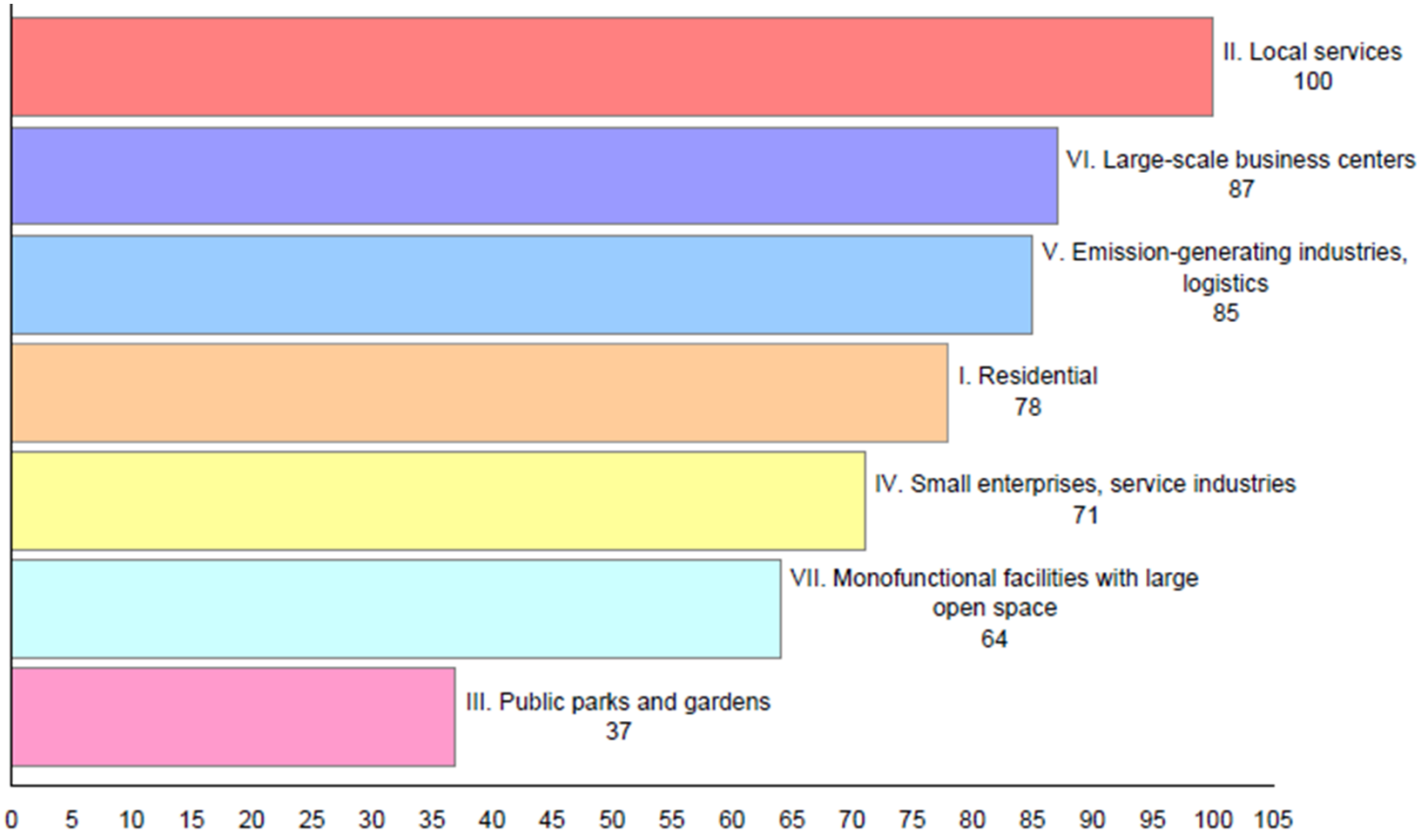
Results	I. Housing	II: Local service	III. Parks, sports fields and playgrounds	IV. Small enterprise and service industries	V. Emitting industries	VI. Large scale enterprises	VII. Complex monofunctional facilities
Sum plus-points	12	8	8	10	0	8	10
Possible plus-points	32	24	16	34	10	18	18
Plus Score	**38**	**33**	**50**	**29**	**0**	**44**	**56**
Sum minus-points	-26	-16	-6	-14	-22	-22	-6
Possible minus-points	-60	-42	-16	-42	-52	-60	-42
Minus Score	**43**	**38**	**38**	**33**	**42**	**37**	**14**
Total Score	**-5**	**-5**	**12**	**-4**	**-42**	**7**	**42**

Assessment Results

Strengths and Weaknesses of Types of Landuse

Results	I. Housing	II: Local service	III. Parks, sports fields and playgrounds	IV. Small enterprise and service industries	V. Emitting industries	VI. Large scale enterprises	VII. Complex monofunctional facilities
Sum main goal 1	-30	-50	-10	-40	0	0	-10
Sum main goal 2	-40	0	0	0	-60	-60	0
Sum main goal 3	30	30	30	30	-20	20	40
Sum main goal 4	-10	0	-10	10	-10	-10	10
Sum main goal 5	-20	-20	0	-20	-20	-20	-20

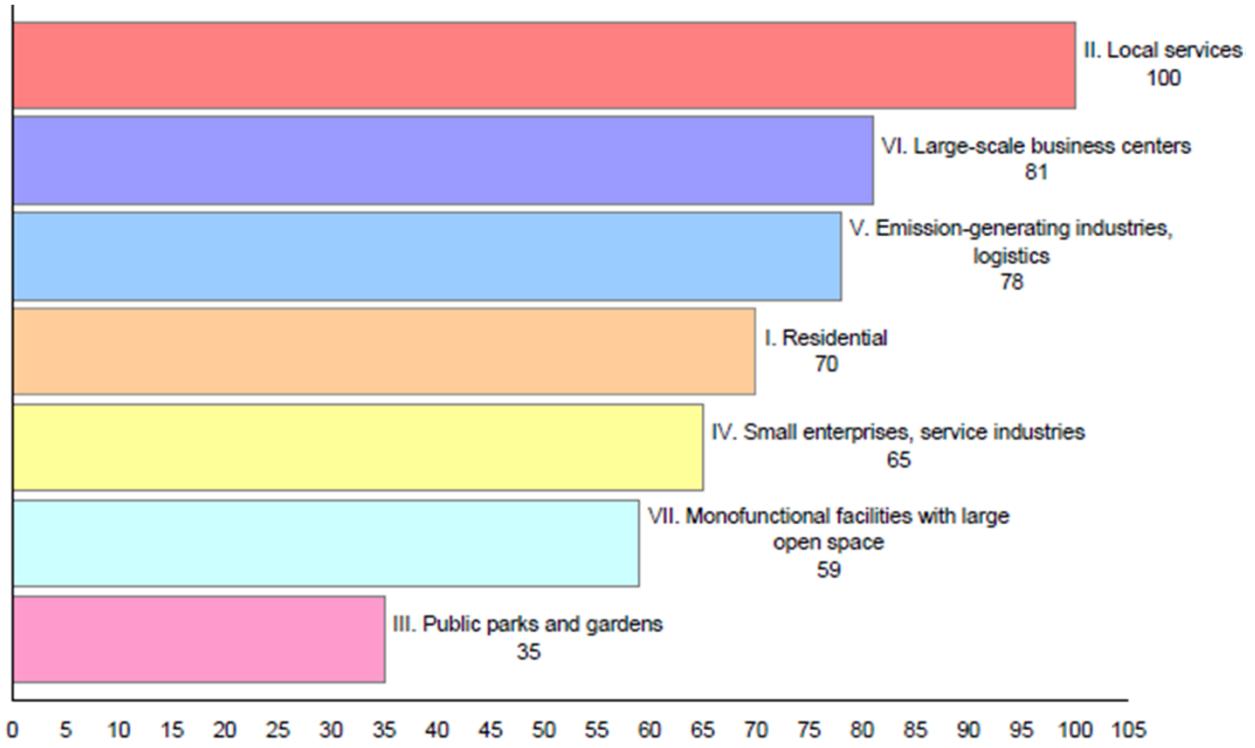
Assessment Results (Exercise)



Assessment Results
(Re-Evaluation with Different Weights | Run 1)

Results (General Goals are weighted)	I. Residential	II. Local services	III. Public parks and gardens	IV. Small enterprises, service industries	V. Emission-generating industries, logistics	VI. Large-scale business centers	VII. Monofunctional facilities with large open space
Sum of plus points	25,8	21	10,5	21	8,75	15,75	12,25
Maximum possible plus points	31,8	21	15,25	32,3	8,75	15,75	17
Achievement level plus	**81**	**100**	**69**	**65**	**100**	**100**	**72**
Sum of minus points	-6,5	0	-5,25	0	-12	-12	-5,25
Maximum possible minus points	-58	-39	-15,3	-39	-55,5	-62,5	-39,3
Achievement level minus	**11**	**0**	**34**	**0**	**22**	**19**	**13**
Total achievement score	**70**	**100**	**35**	**65**	**78**	**81**	**59**

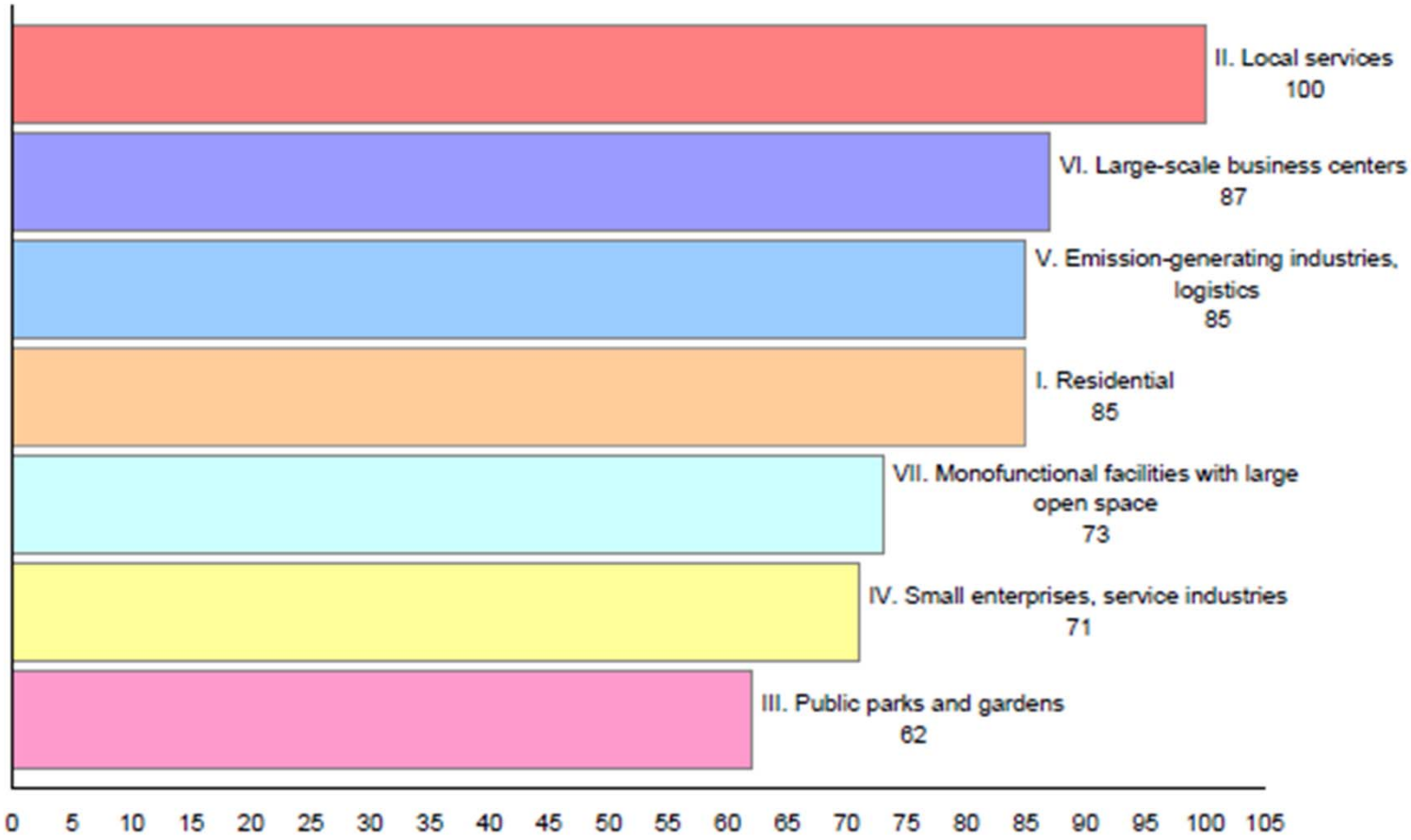
Assessment Results
(Re-Evaluation with Different Weights | Run 1)



Assessment Results
(Re-Evaluation with Different Weights | Run 2)

Results (General Goals are weighted)	I. Residential	II. Local services	III. Public parks and gardens	IV. Small enterprises, service industries	V. Emission-generating industries, logistics	VI. Large-scale business centers	VII. Monofunctional facilities with large open space
Sum of plus points	28	24	12	24	10	18	14
Maximum possible plus points	32	24	16	34	10	18	18
Achievement level plus	**88**	**100**	**75**	**71**	**100**	**100**	**78**
Sum of minus points	-2	0	-2	0	-8	-8	-2
Maximum possible minus points	-60	-42	-16	-42	-52	-60	-42
Achievement level minus	**3**	**0**	**13**	**0**	**15**	**13**	**5**
Total achievement score	**85**	**100**	**62**	**71**	**85**	**87**	**73**

Assessment Results
(Re-Evaluation with Different Weights | Run 2)



SINBRA – The Monon Site (Implementing the Exercise)

➡ **In the Indianapolis exercise the following characteristics of the SINBRA tool were highlighted:**

- **it is helpful in opening and guiding a discussion about possible kinds of re-use of a brownfield site,**
- **it is easy to understand and to implement,**
- **it provides a reliable framework for a rational discussion of options for re-use of brownfields and its benefits and disadvantages for the goal of sustainable urban development,**
- **it provides qualified and transparent results, which, then, are the basis for a qualified discussion about the causes and consequences of the outcome,**
- **its flexibility is of great advantage; the option to revise weights of goals and sub-goals, as well as indicators, and to change operationalizations and measurements are necessary to better adjust the tool to American conditions in general, and to conditions and goals of individual cities in the U.S.A., particularly.**

Assessment Results

Weiging Alternatives for Lowest Cost, Highest Community Benefit
(Efficient) Sustainable Land Use: Consider What Could Be...
Consider the Neighborhood.. Consider the Outcomes...

1 ACRE

10' x 20' GARDEN PLOTS

MONON TRAIL

PARKS & RECREATION REUSE AREA

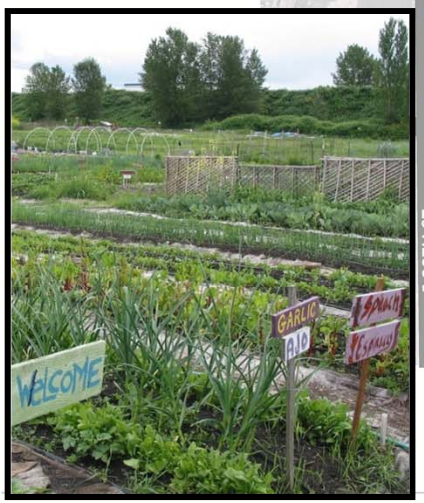
SAFE SOIL PART B

COMMERCIAL COMPONENT (INCL. COMMUNITY COMPOST ZONE)

SAFE SOIL PART A

E 28TH ST

E 25TH ST



CONCEPT PLAN

MONON ACRES

INDIANAPOLIS, INDIANA

STADTREGION

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