

XXIII SEMANA DE LA INGENIERIA CIVIL
Y EL MEDIO AMBIENTE 2017

Ingeniería Civil y Paisaje

El Ingeniero como Arquitecto del Paisaje

Intro

- Cualquier obra civil implica, inexorablemente, una alteración del paisaje: puentes, carreteras, puertos, depuradoras, ferrocarriles, viaductos, canales, presas, etc. Incluso las obras subterráneas (productos de la excavación) Aguiló, Español, etc.
- Normalmente los proyectos de ingeniería son redactados a partir de criterios de eficiencia y funcionalidad, para ser sometidos posteriormente a evaluación de impacto ambiental y de su integración paisajística.
- El proceso encarece (las más de las veces impide) la adaptación real de la obra al entorno, siendo completado con algunas medidas para salvar el tipo, sin resolver eficazmente los impactos. (Casos muy aislados de modificación)
- Una posible solución sería proyectar desde la inmersión en el paisaje - territorio:
 - Integrar: Completar un todo con las partes que faltaban
 - Si el proyecto es “completo” ya no es necesaria la “integración”
 - Ya no es solo el “paisaje”: Fragmentación, biodiversidad, conectividad ecológica, cambio climático (no causas, sino consecuencias), infraestructura verde urbana, movilidad sostenible, &c.
 - Cambios en la formación, actuación, legislación, administración, disposición, procedimientos, ...
 - Y, sobre todo, adoptar herramientas de otras disciplinas para resolver problemas de la propia disciplina, ... / ... ¿el ingeniero como arquitecto del paisaje?

¿Cómo lo hacemos?

ARUP





UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS
DE CAMINOS, CANALES Y PUERTOS



CAMINOS
apv

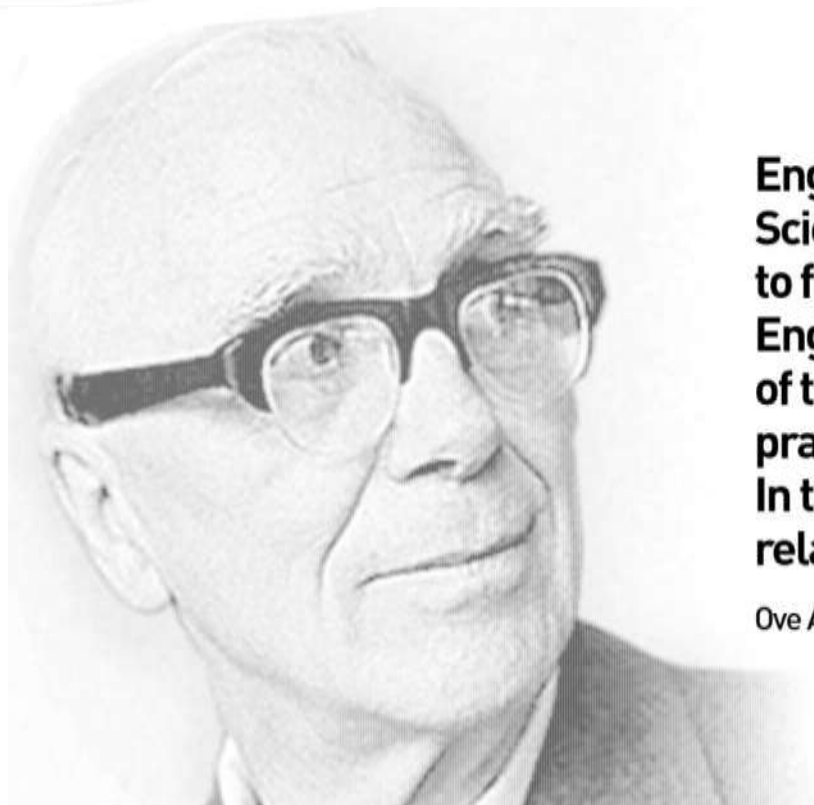


INGENIERIA Y PAISAJE:
INMERSION DESDE EL PROYECTO

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**Engineering is not a science.
Science studies particular events
to find general laws.
Engineering design makes use
of the laws to solve particular
practical problems.
In this it is more closely
related to art or craft.**

Ove Arup

ilikearchitecture.net

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Are we giving Engineers the right skills?

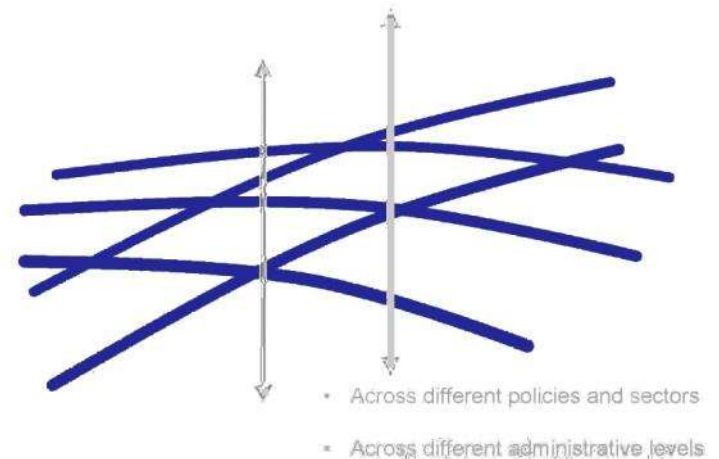
Cada vez más, los ingenieros necesitan una gama tan amplia de habilidades blandas como técnicas profundas. Sin embargo, creo que este aspecto de la formación a menudo se pasa por alto.

Engineers need to be able to work from first principles and add up – but today they also need much broader abilities such as interdisciplinary team working and problem-solving.

Twenty years ago, I would have expected to see just a few technical disciplines working on a project. Today a typical project could involve dozens of different specialism from engineering to environmental planning and construction management. So the key is including people in your team who can work across and in between these disciplines to bring all these different and competing strands together.

¿Están los ingenieros de su país recibiendo la capacitación que necesitan? ¿Hay enfoque suficiente en el desarrollo de habilidades blandas?

What approach do we need ?





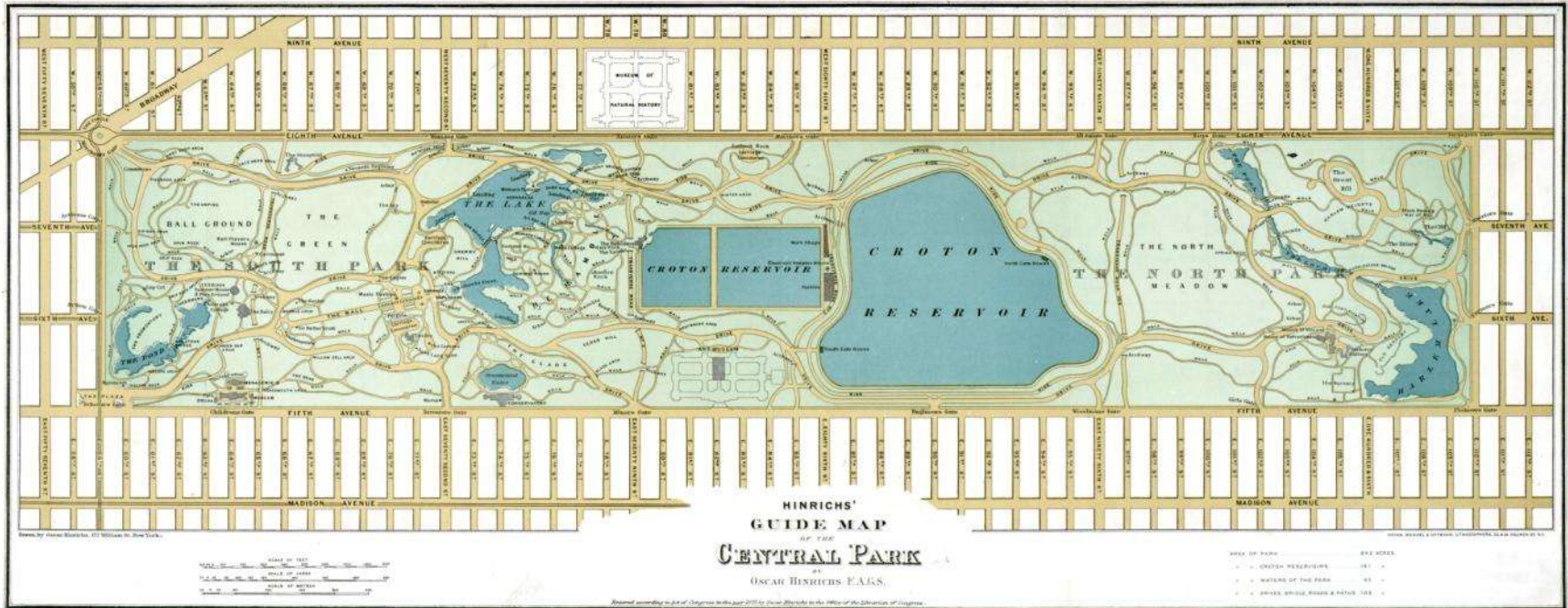
Conventional engineering does not question the goals of the selected plan and can only object to the feasibility of a proposed typology in a given context. Engineers deal with the challenge of the realization of a plan at a given point in space and time. ***Ecological engineering has to be a flexible iterative process of design, in which the designer must continually update goals, essences, typologies and processes of realization.***

Distinguishing ecological engineering from environmental engineering
T.F.H. Allen et al. / *Ecological Engineering* 20 (2003) 389–407



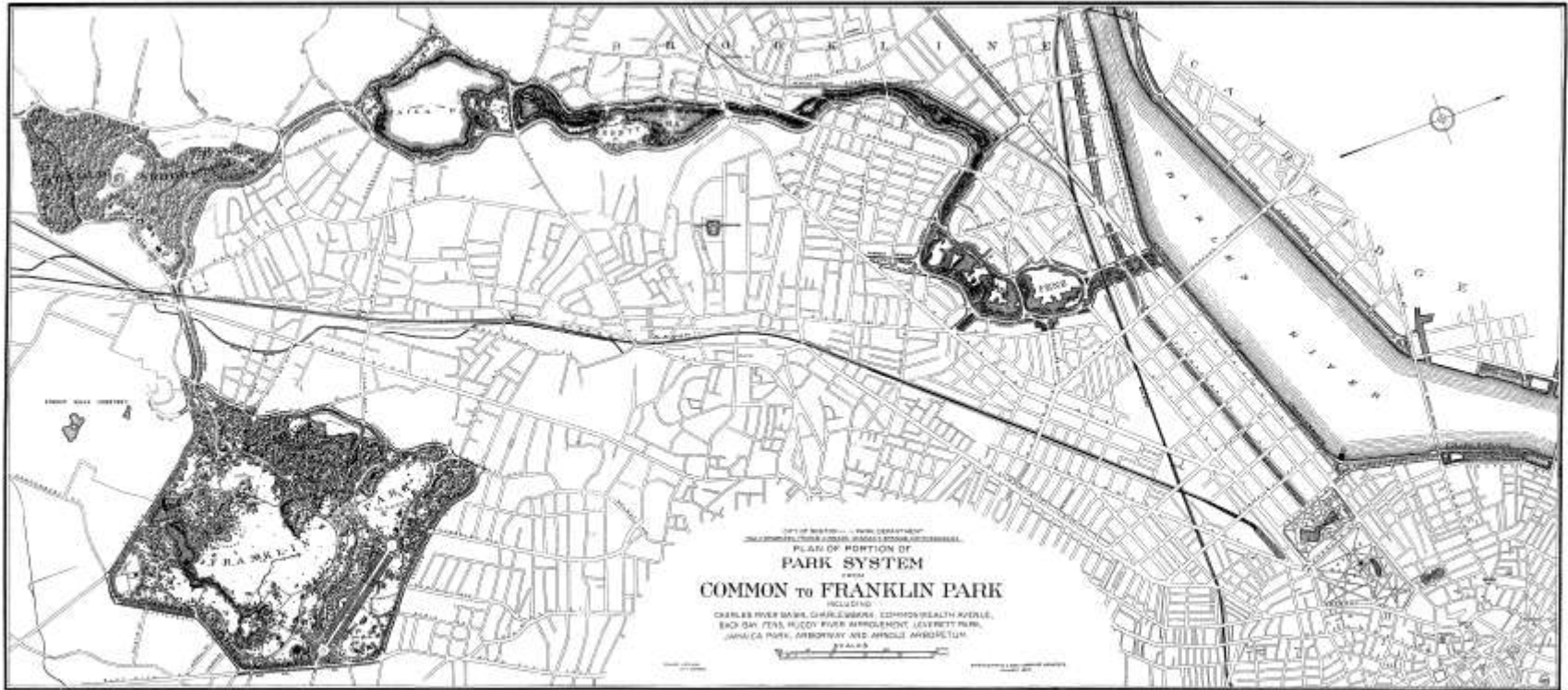
Es esto y más. Mucho más.

Al grano: el Ingeniero como Arquitecto del Paisaje



La Arquitectura del Paisaje es una disciplina muy antigua, que en nuestro país no está ni regulada ni reconocida. Ni se espera que lo sea. A lo largo de la historia ha introducido conceptos y herramientas muy útiles para el desarrollo urbano y territorial. A veces olvidada, vuelven a estar presente, sobre todo en las grandes consultoras. **En buena medida son responsables de esa demanda de nuevas aptitudes entre los ingenieros.** Veamos algo de lo que hicieron con la intención, dada su ausencia aquí, de que haya quienes puedan recoger su legado.

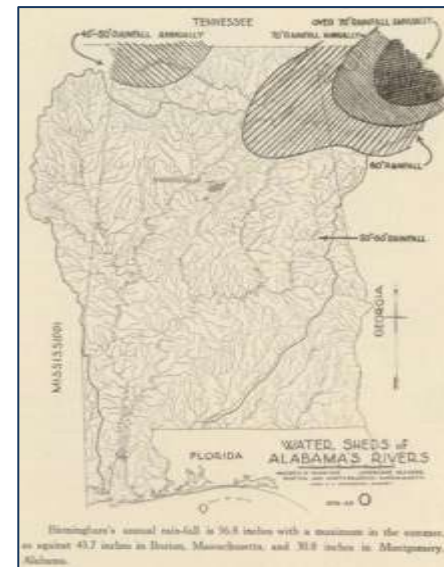
Al grano: el Ingeniero como Arquitecto del Paisaje

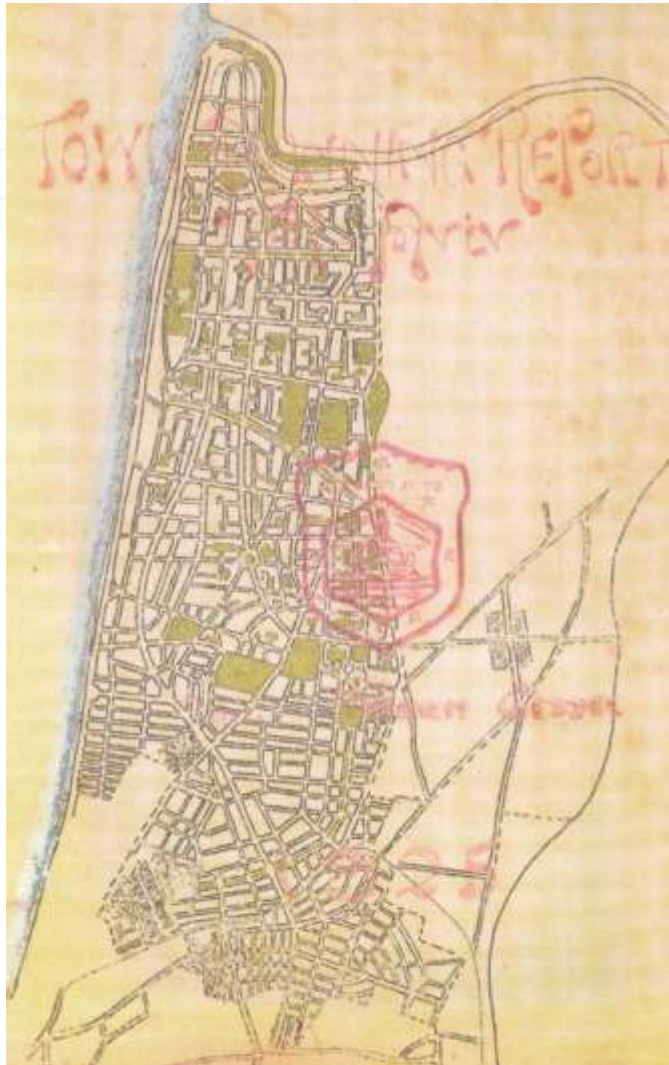


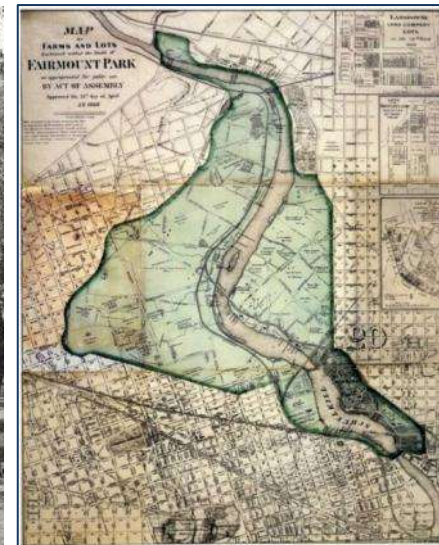
National Park Service - Frederick Law Olmsted National Historic Site

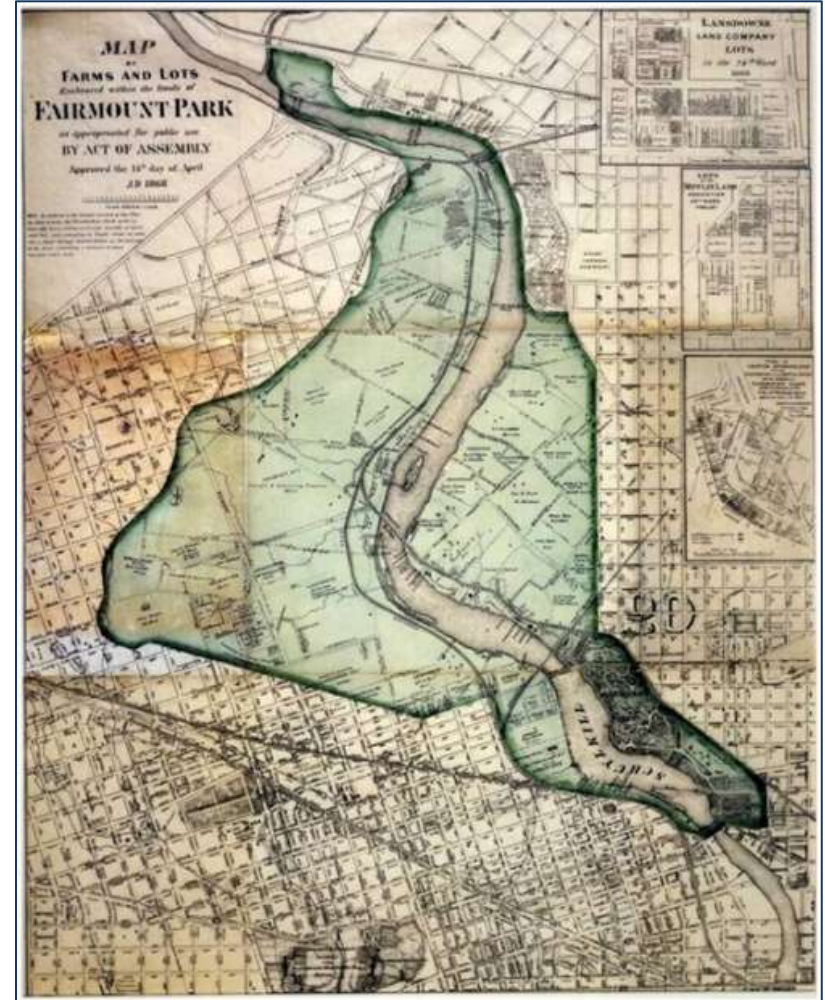
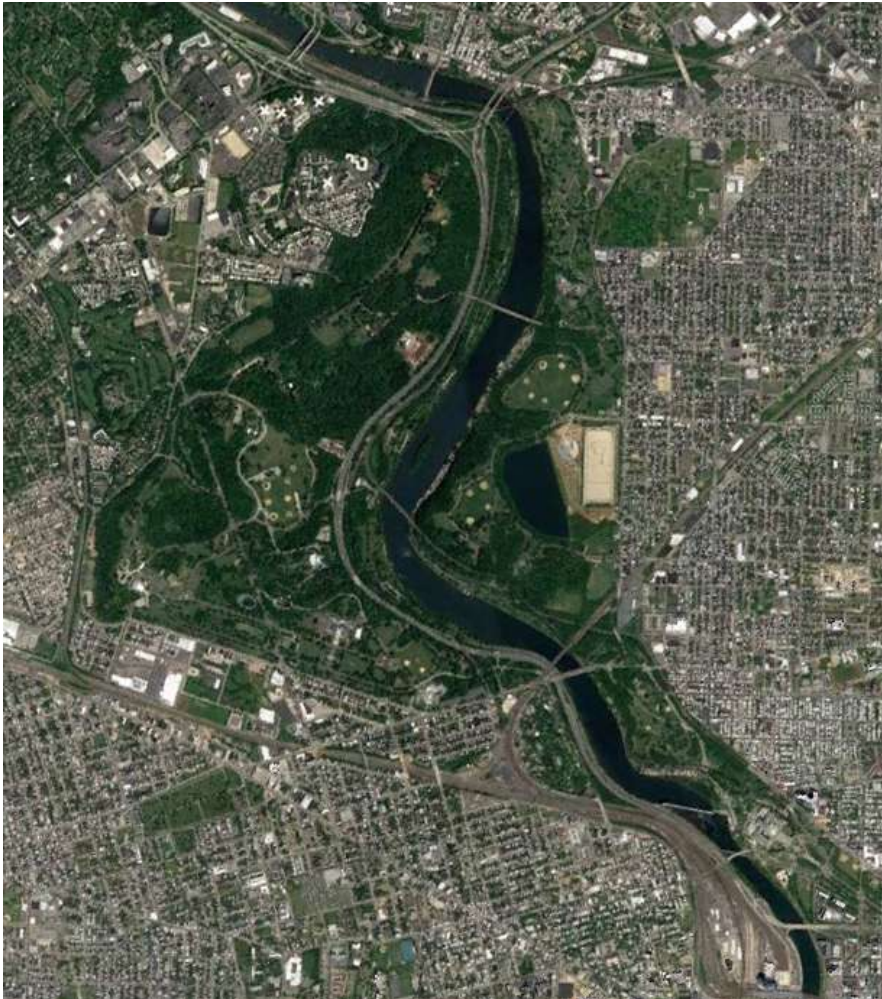
OLMSTED ARCHIVES

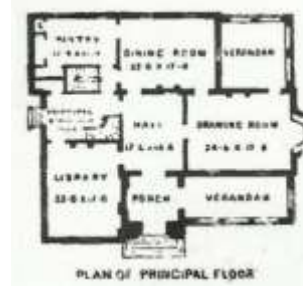
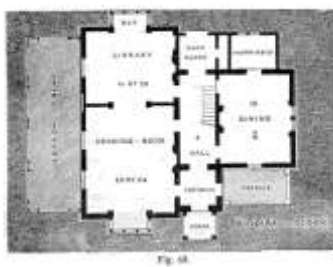
91 Warren Street - Brookline, Massachusetts 02146











“No single park, no matter how large and how well designed, would provide the citizens with the beneficial influences of nature, instead, parks need to be linked to one another and to surrounding residential neighborhoods” *Olmsted & Eliot (S. XIX)*

Olmsted was appointed (1863) to draft a charter and plan for **Yosemite**, he framed the intellectual foundation for what became the **world's first system of national parks**. In his report, Olmsted made the case that it is a “political duty” of republican government to set aside “great public grounds **for the free enjoyment of the people,**” forever guaranteeing its citizens “**the pursuit of happiness.**” Olmsted, not by coincidence, referred to the words of the Declaration of Independence, as **Lincoln** had done at Gettysburg when he used the words “**all men are created equal,**” opening the door to “**a new birth of freedom**” — one that included emancipation among other freedoms. Access to parks and recreation would be a fundamental entitlement of all Americans.

On March 5, 1890, **Eliot** published an article entitled “**Waverly Oaks**” to defend a stand of virgin trees in Belmont, Massachusetts, in the process making a plea **for preservation** of the oaks and outlining **a strategy for conserving other areas of scenic beauty** in the same way that the Boston Public Library held books and the Museum of Fine Arts pictures. This article resulted in a **conference** held at the **Massachusetts Institute of Technology** in **1890** on preservation of scenic beauty, and led to the enactment of Massachusetts legislation creating **The Trustees of Reservations** in 1891 — **the world's first organization created** to “acquire, hold, protect and administer, for the benefit of the public, beautiful and historical places.” Within four years, Britain's **National Trust** was created along these lines.



Harvard University
Graduate School of Design

1872: Arnold Arboretum is established : Arnold Arboretum blends research and beloved public park Arnold Arboretum is established in 1872 through a bequest from James Arnold's estate. The 281-acre estate was originally donated to Harvard in 1842 by Benjamin Bussey. **Frederick Law Olmsted** planned the Arboretum from 1877 to 1885.

1893: Frederick Law Olmsted Jr crea el primer departamento universitario de Arquitectura del Paisaje.

1903: primer curso de **Urban Planning** en la escuela de Arquitectura del Paisaje.

1923: departamento de **Town Planning**.

1936: se crea la GSD uniendo las escuelas de arquitectura (1874), arquitectura del paisaje y urbanismo.

Master of Landscape Architecture in Urban Design

Jointly administered by the Department of Urban Planning and Design and the Department of Landscape Architecture, the program leading to the **Master of Landscape Architecture in Urban Design** is intended for individuals who have completed a **five-year** undergraduate professional program in landscape architecture or its equivalent.

2016: Aquí a lo nuestro. No podemos perder el tiempo con tonterías de esas. (L.A. >70; T.P. >90; A. <> 136)



LANDSCAPE ARCHITECTURE FOUNDATION

DATOS

1750

1800

1850

1900

1950

2000

1950

PIB

CONTAMINACION

USO DE FERTILIZANTES

CONTAMINACION

CONSUMO DE AGUA

TEMPERATURA

DESASTRES

NO2

PERDIDA OZONO

PERDIDA BOSQUES

PERDIDA BIODIVERSIDAD

TEMPERATURA

DESASTRES NATURALES



LANDSCAPE ARCHITECTURE FOUNDATION



A Declaration of Concern

On June 1 and 2, 1966, at Independence Hall in Philadelphia, a small group of landscape architects who shared a concern for the quality of the American environment and its future were assembled by the Landscape Architecture Foundation. This was their declaration:

We urge a new, collaborative effort to improve the American environment and to train a **new generation of Americans equipped by education, inspiring example and improved organizations to help create that environment.** A sense of crisis has brought us together. What is merely offensive or disturbing today threatens life itself tomorrow. We are concerned over misuse of **the environment and development which has lost all contact with the basic processes of nature.** Lake Erie is becoming septic, New York City is short of water, the Delaware River is infused with salt, the Potomac River with sewage and silt. **Air is polluted in major cities and their citizens breathe and see with difficulty.** Most urban Americans are being separated from visual and physical contact with nature in any form. All too soon life in such polluted environments will be the national human experience. **There is no "single solution" but groups of solutions carefully related one to another.** There is no one-shot cure, nor single-purpose panacea, but the **need for collaborative solutions. A key to solving the environmental crisis comes from the field of landscape architecture, a profession dealing with the interdependence of environmental processes.** Man is not free of nature's demands, but becomes more dependent upon nature. Natural resources are where they are — not where we wish them to be. **Those who plan for the future must understand natural resources and processes. These are the basis of life and the prerequisite for planning the good life. They must know geology, physiography, climatology, ecology to know why the world's physical features are where they are; and why plants, animals and man flourish in some places and not in others.** Once they understand landscape capabilities — the "where" and "why" of environment, the determinants of change — **they can then interpret the landscape correctly.** Only then are they qualified to plan and design the environment. Like the architect, the landscape architect practices an historic art. However, the **landscape architect is uniquely rooted in the natural sciences. He is essential in maintaining the vital connection between man and nature.** The demand for better resource planning and design is expanding... Today's demands require far more landscape architects than are available. Schools are expanding, as are the ranks of practitioners, but they are stretched thin. The gap between demand and supply widens. **The environment is being built hastily and too often without such professional advice or help.** In the process, far too much is damaged beyond recall. The solution of the environmental crisis demands the skills of many professions. So that the landscape architects may make their vital contribution, we propose a four-point program to bridge the gap between knowledge and practice: (1) recruitment, (2) education, (3) research and (4) a nationwide system for communicating the results of research, example and good practice. Its purpose is to multiply the effectiveness of the limited number of landscape architects, while producing more trained people to cope with the future environment. **We pledge our services. We seek help from those who share our concern.**

Campbell Miller, Grady Clay, Ian L. McHarg, Charles R. Hammond, George E. Patton, John O. Simonds



LANDSCAPE ARCHITECTURE FOUNDATION



A Declaration of Concern

1966, Philadelphia, landscape architects ...

... concern ...

... American environment ...

... new generation of Americans equipped by education, inspiring example and improved organizations to help create that environment.

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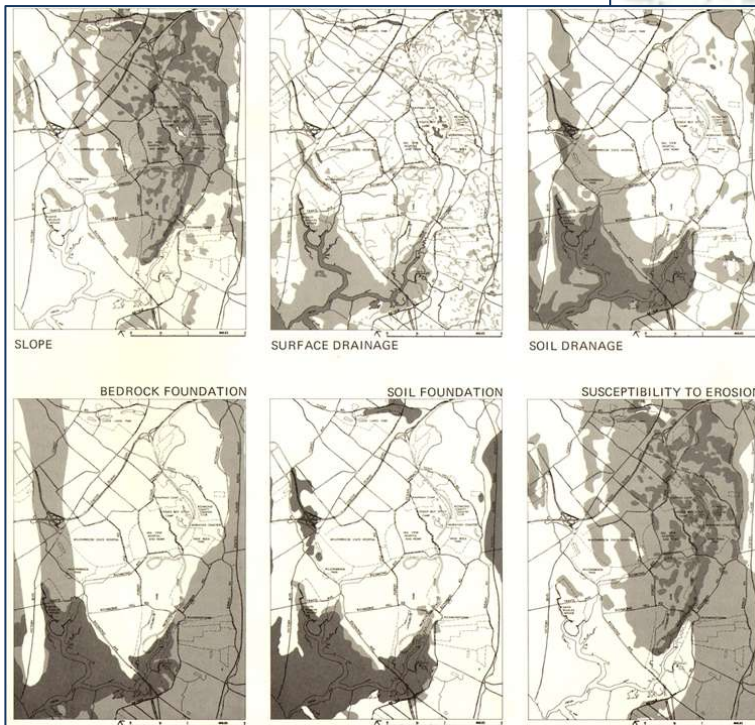
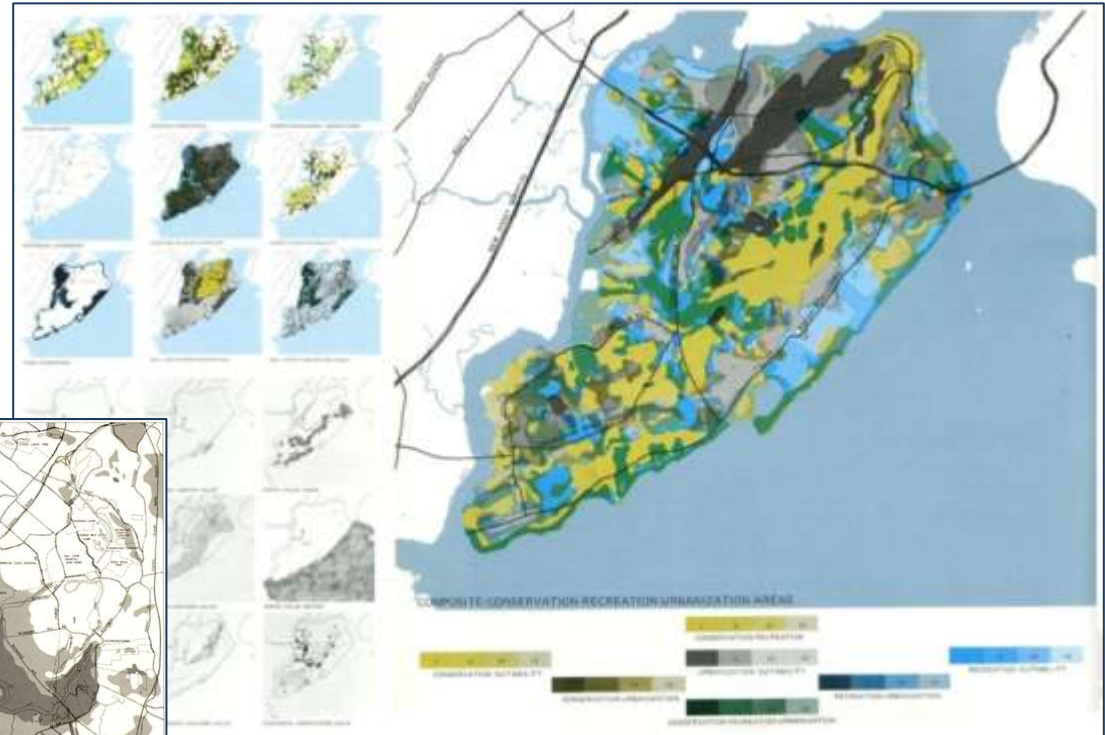
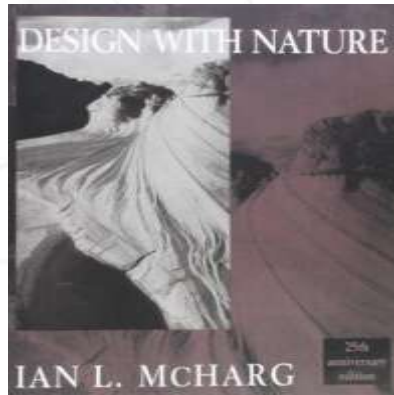
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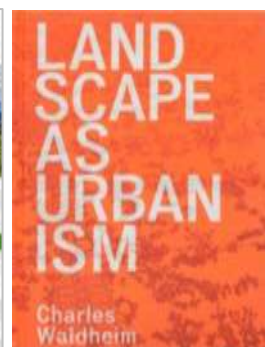
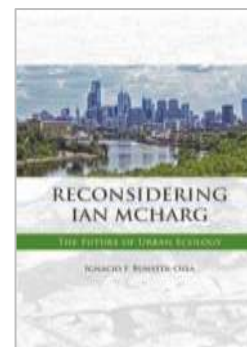
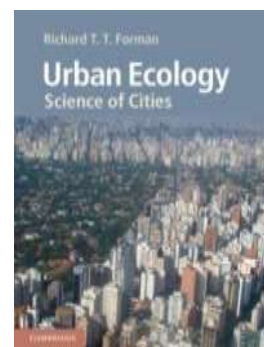
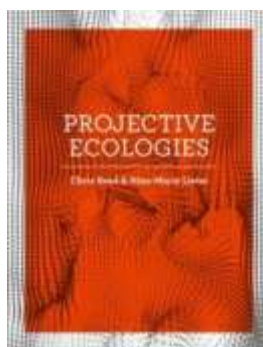
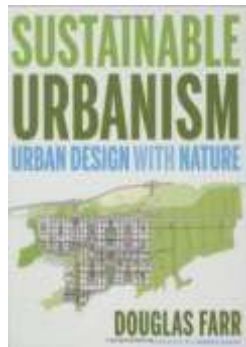
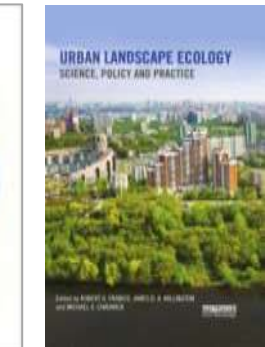
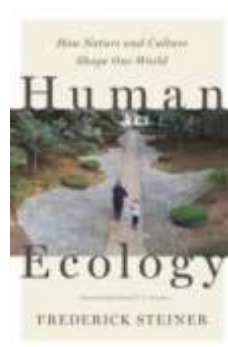
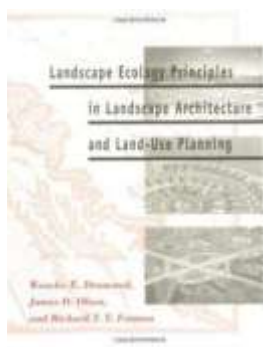
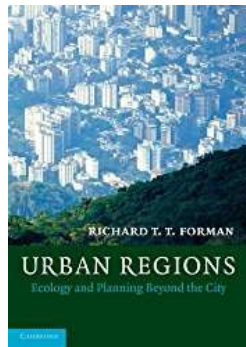
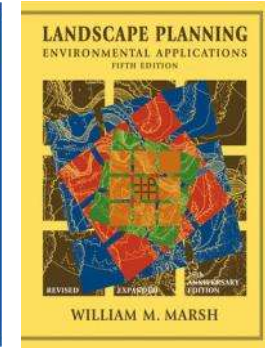
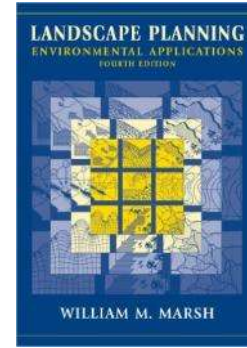
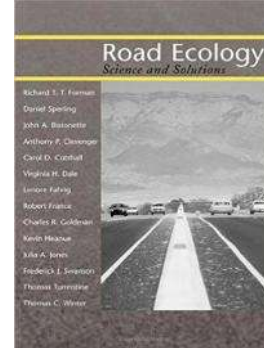
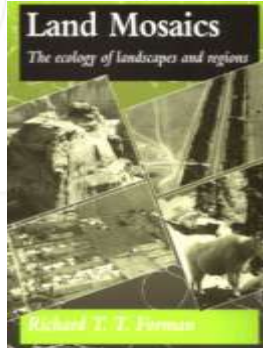
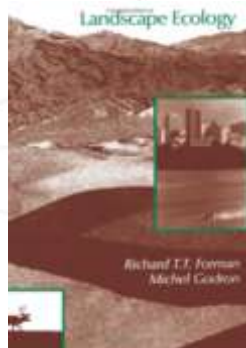
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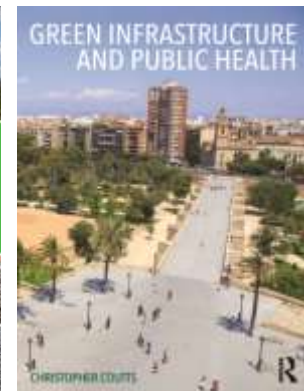
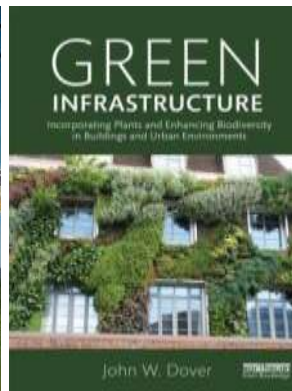
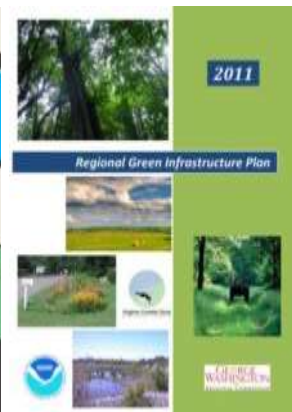
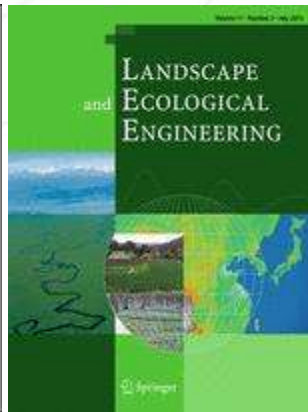
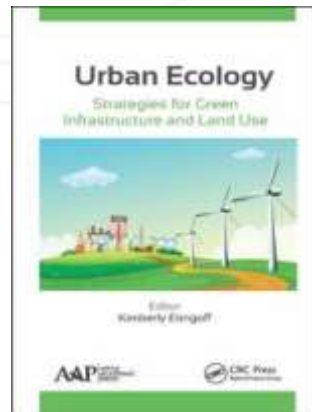
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We seek help from those who share our concern.

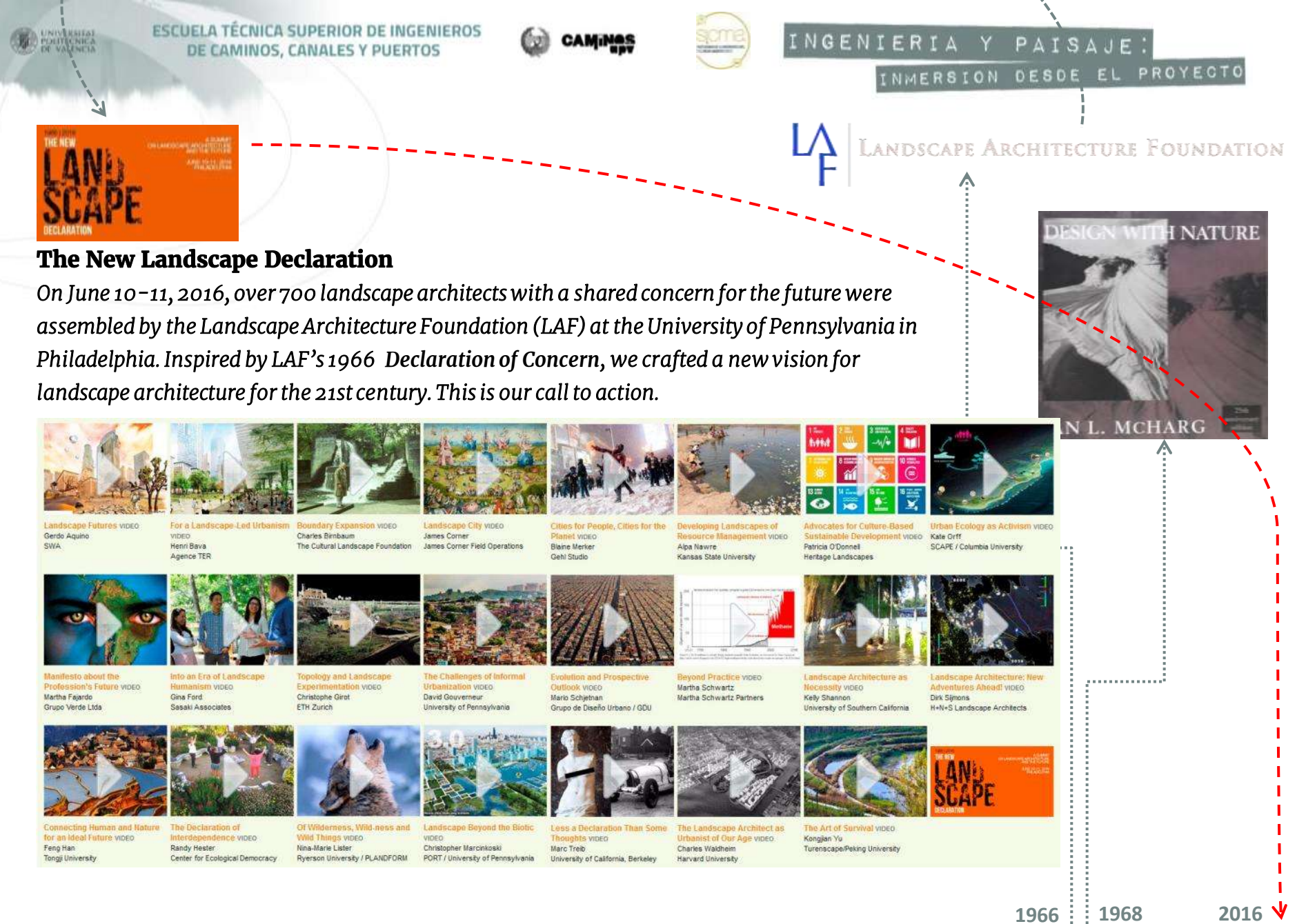
Ian L. McHarg & Colegas

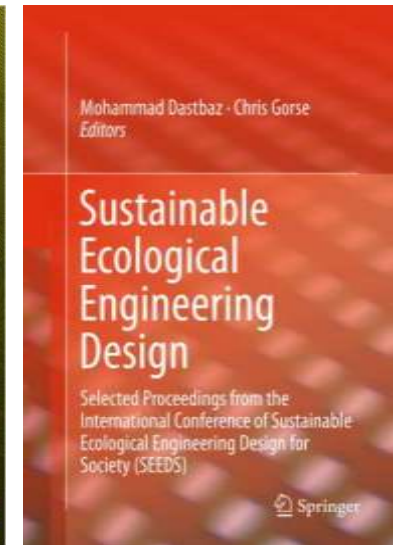
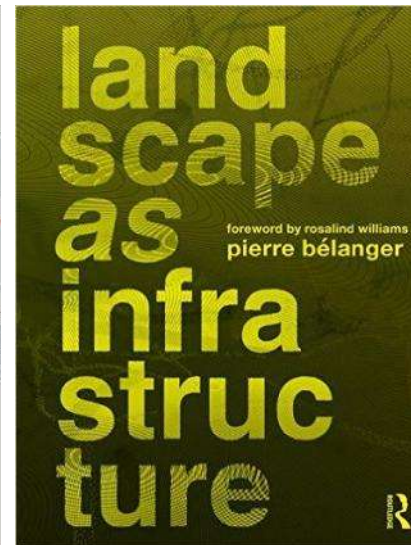






- **INFRAESTRUCTURA VERDE**
- **INFRAESTRUCTURA VERDE URBANA**
- **USA – UK – EU - ESPAÑA**
- **RESTAURACIÓN ECOLÓGICA**
- **CONECTIVIDAD ECOLÓGICA**
- **ESTRATEGIA ESTATAL DE INFRAESTRUCTURA VERDE Y DE LA
CONECTIVIDAD Y RESTAURACIÓN ECOLÓGICA**





As ecology becomes the new engineering, the projection of **landscape as infrastructure**—the contemporary alignment of the disciplines of **landscape architecture, civil engineering, and urban planning**— has become pressing. This book argues for the strategic design of "infrastructural ecologies," describing a synthetic landscape of living, biophysical systems that operate as urban infrastructures to shape and direct the future of urban economies and cultures into the 21st century.

Pierre Bélanger is Associate Professor of Landscape Architecture and Co-Director of the Master in Design Studies Program at Harvard University's Graduate School of Design.

AECOM

AN AECOM BRILLIANT CITIES REPORT

GREEN INFRA STRUCTURE

A vital step to Brilliant Australian cities

Cities Alive

Towards a walking world

ARUP

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LetPeopleWalk

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WELCOME TO THE URBAN ENCOUNTERS OF THE THIRD KIND

Help us to find out the best and worst world Mayors

FIRST KIND



CITIES FOR CARS



SECOND KIND



CITIES FOR CARS AND BIKES



THIRD KIND



CITIES FOR PEOPLE



FINAL KIND



CITIES FOR HAPPINESS!



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[GALLERY & VOTE FOR TOP MAYORS](#)

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PEDESTRIANIZATOR, ENZIMATOR AND INCLUSIVATOR MAYORS



PEDESTRIANIZATOR

We are looking for the most Pedestrianizator Mayors of the world. Those who have done the most to increase the pedestrian area of their cities. Can you help us?

Yes, I can and I want to participate **SENDING** examples of Pedestrianizator Mayors

[SEND](#)

Yes, I can and I want to participate **VOTING** examples of Pedestrianizator Mayors

[VOTE](#)


ENZIMATOR

We are looking for the most Enzimator Mayors of the world. Those who have done the most to increase the speed of pedestrianization of their cities. Can you help us?

Yes, I can and I want to participate **SENDING** examples of Enzimator Mayors

[SEND](#)

Yes, I can and I want to participate **VOTING** examples of Enzimator Mayors

[VOTE](#)


INCLUSIVATOR

We are looking for the most Inclusivator Mayors of the world. Those who have done the most to engage their communities about pedestrianization. Can you help us?

Yes, I can and I want to participate **SENDING** examples of Inclusivator Mayors

[SEND](#)

Yes, I can and I want to participate **VOTING** examples of Inclusivator Mayors

[VOTE](#)

UPLOAD NICE EXAMPLES VISITING:
TOP MAYORS

UPLOAD UNFRIENDLY EXAMPLES:
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[WORST MAYORS](#)
[GALLERY WORST](#)
[BLOG](#)

IMPROVABLE, BUNGLER AND SHAMEFUL MAYORS



IMPROVABLE

We are looking for the most Improvable Mayors of the world. Those who have done nice pedestrian works but clearly improvable.

Can you help us?

Yes, I can and I want to participate **SENDING** examples of Improvable Mayors

[SEND](#)

Yes, I can and I want to participate **VOTING** examples of Improvable Mayors

[VOTE](#)


BUNGLER

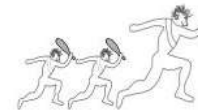
We are looking for the most Bungler Mayors of the world. Those who have had good intentions but what better if they had not.

Can you help us?

Yes, I can and I want to participate **SENDING** examples of Bungler Mayors

[SEND](#)

Yes, I can and I want to participate **VOTING** examples of Bungler Mayors

[VOTE](#)


SHAMEFUL

We are looking for the most Shamful Mayors of the world. Those who have had good intentions but the remedy has been worse than the disease.

Can you help us?

Yes, I can and I want to participate **SENDING** examples of Shameful Mayors

[SEND](#)

Yes, I can and I want to participate **VOTING** examples of Shameful Mayors

[VOTE](#)

UPLOAD NICE EXAMPLES VISITING:
TOP MAYORS

UPLOAD UNFRIENDLY EXAMPLES:
WORST MAYORS

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PLEASE, SHARE. THANK YOU



RESPECTO A LAS ACTUALES DISCIPLINAS

TRANSPORTE - MOVILIDAD - HIDRÁULICA
RÍOS - S. & D - COSTAS - PUERTOS
URBANISMO - PLANIFICACIÓN



TRANSPORTE - MOVILIDAD



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ESCUELA TÉCNICA SUPERIOR DE INGENIEROS
DE CAMINOS, CANALES Y PUERTOS



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INGENIERIA Y PAISAJE:

INMERSION DESDE EL PROYECTO



The world's first parkway was conceived by [Frederick Law Olmsted](#) and [Calvert Vaux](#) in 1866. The term [parkway](#) was coined by these designers as a landscaped road built expressly for '[pleasure-riding](#) and driving' or scenic access to [Prospect Park](#) (also designed by Olmsted and Vaux). To these ends, commerce was restricted. The parkway was constructed from Grand Army Plaza to Ralph Avenue (the boundary of the [City of Brooklyn](#)) between 1870 and 1874. Olmsted and Vaux intended Eastern Parkway to be the Brooklyn nucleus of an interconnected park and parkway system for the New York area. ***The plan was never completed but their idea of bringing the countryside into the city influenced the construction of major parks and parkways in cities throughout the United States***



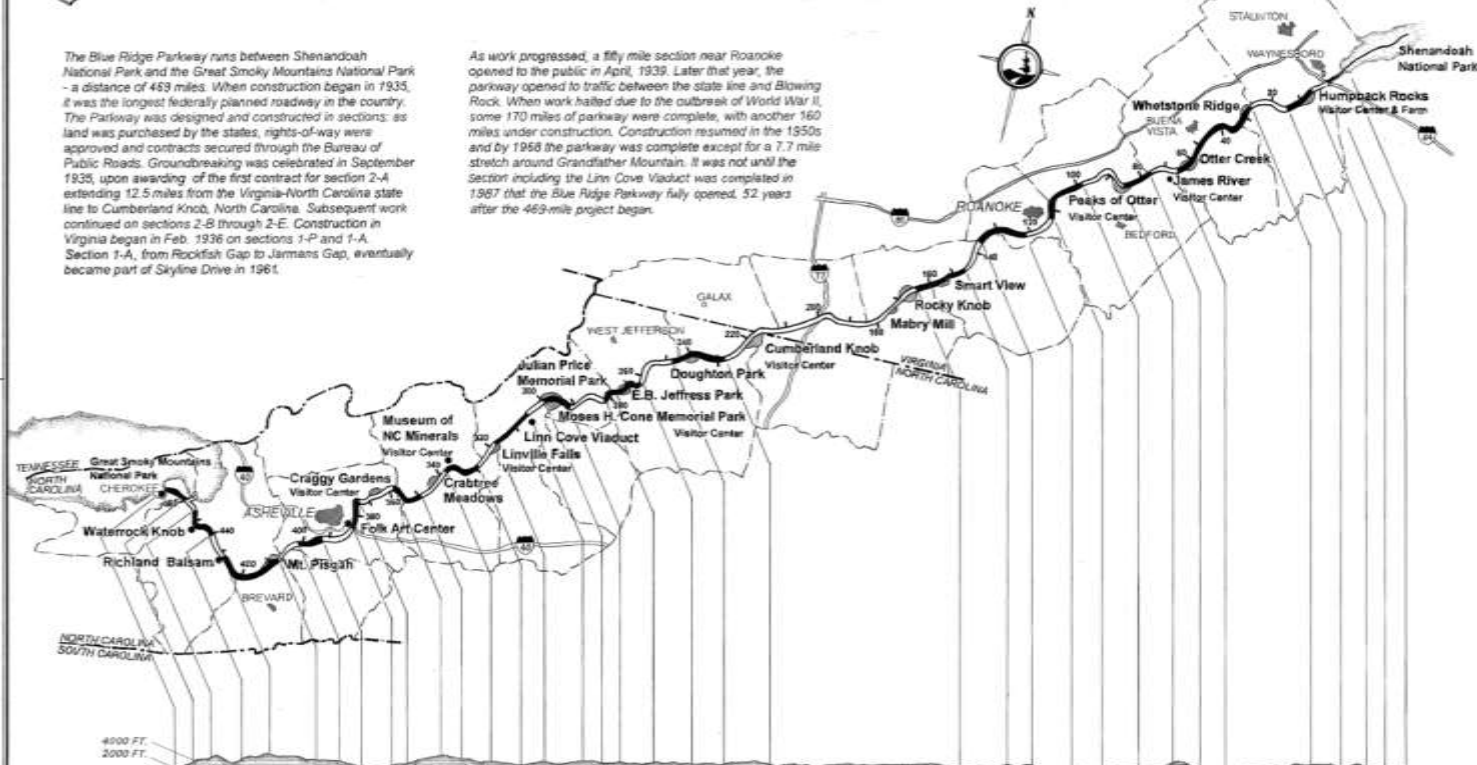


BLUE RIDGE PARKWAY



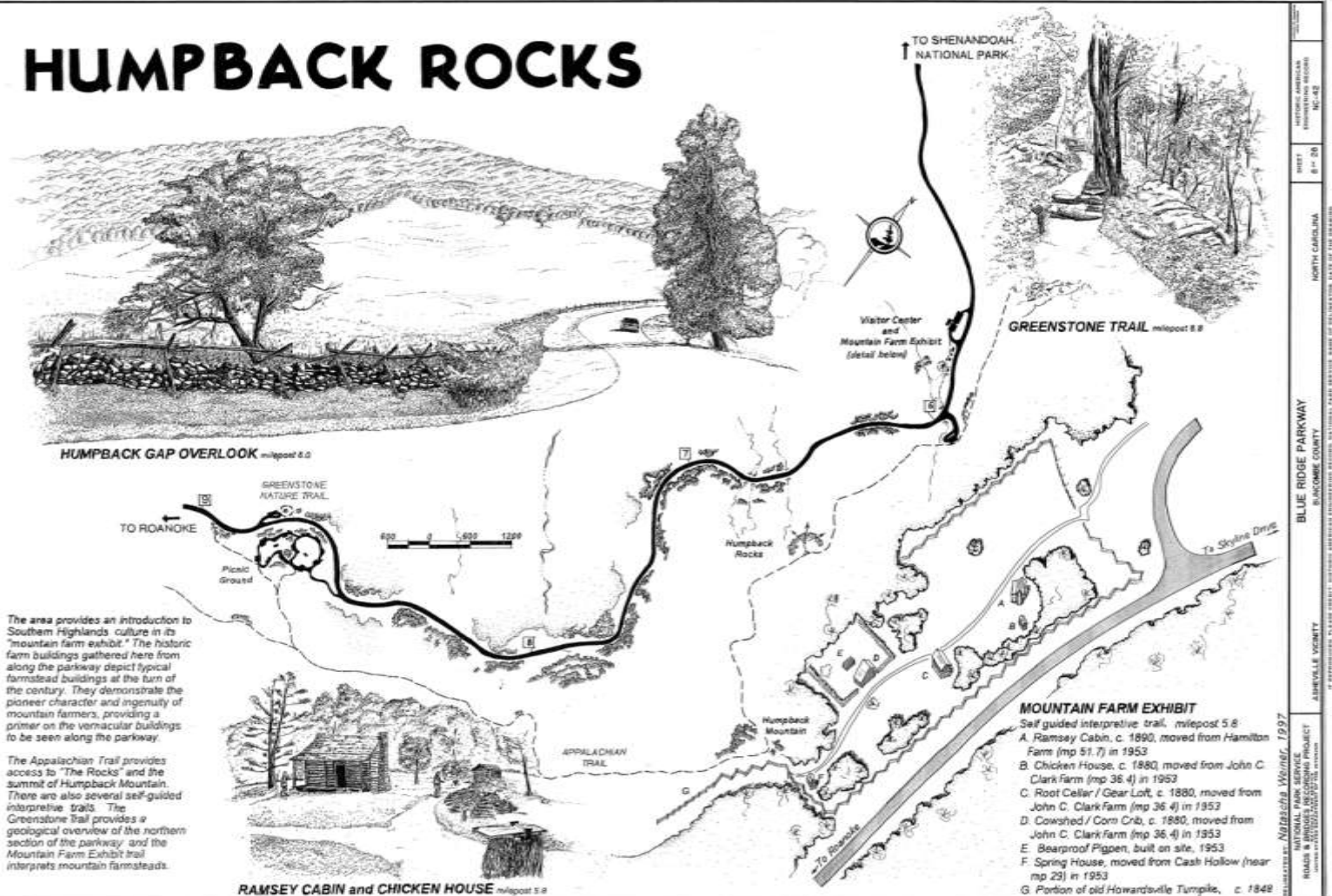
The Blue Ridge Parkway runs between Shenandoah National Park and the Great Smoky Mountains National Park - a distance of 469 miles. When construction began in 1935, it was the longest federally planned roadway in the country. The Parkway was designed and constructed in sections: as land was purchased by the states, rights-of-way were approved and contracts secured through the Bureau of Public Roads. Groundbreaking was celebrated in September 1935, upon awarding of the first contract for section 2-A extending 12.5 miles from the Virginia-North Carolina state line to Cumberland Knob, North Carolina. Subsequent work continued on sections 2-B through 2-E. Construction in Virginia began in Feb. 1936 on sections 1-P and 1-A. Section 1-A, from Rockfish Gap to Jammers Gap, eventually became part of Skyline Drive in 1961.

As work progressed, a fifty mile section near Roanoke opened to the public in April, 1939. Later that year, the parkway opened to traffic between the state line and Blowing Rock. When work halted due to the outbreak of World War II, some 170 miles of parkway were complete, with another 160 miles under construction. Construction resumed in the 1950s and by 1958 the parkway was complete except for a 7.7 mile stretch around Grandfather Mountain. It was not until the Section including the Linn Cove Viaduct was completed in 1987 that the Blue Ridge Parkway fully opened, 52 years after the 469-mile project began.



COMPLETED	37	41	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936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HUMPBACK ROCKS



**THE FIRST SEGMENTAL
STRUCTURE IN NORTH AMERICA
BUILT USING PROGRESSIVE PLACEMENT**

PEDESTRIAN TRAIL BELOW VIADUCT

TRANSPORTING THE SEGMENTS

ERECTING THE SEGMENTS

A stiff-leg crane lifted the precast superstructure and pier segments from the truck around to the end of the cantilever where they were placed into position. The precast segmental pier design enabled workers to quickly construct and immediately load a pier upon completion, thereby minimizing delays in the erection of the superstructure. A temporary wood bridge allowed workers to build the pier foundations ahead of the superstructure in order to speed up construction with minimum of disturbance to the site.

BRIDGES

STEEL GIRDER

BIG PINE CREEK BRIDGE #7 milepost 225
 (spans 237' over Big Pine Creek)

REINFORCED CONCRETE ARCH

LINVILLE RIVER BRIDGE milepost 316.6
 (spans 309' over the Linville River)

The Linville River bridge is the only large reinforced concrete bridge with rusticated stone. Most of the longest bridges, such as steel girder bridges, prestressed concrete girder bridges, and concrete box girder bridges, were built later using different, more cost-efficient materials and techniques.

SWANNANOVA RIVER BRIDGE milepost 383.2
 (spans 993' over the Swannanovia River, the Norfolk Southern Railroad, and Interstate 40)

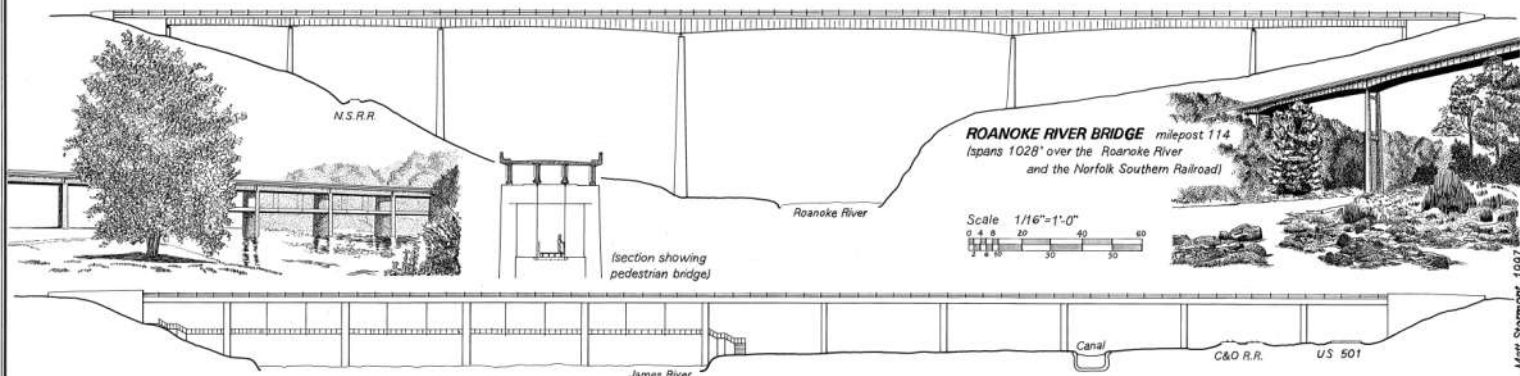
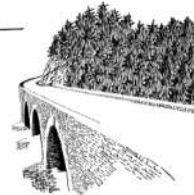
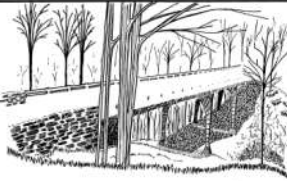
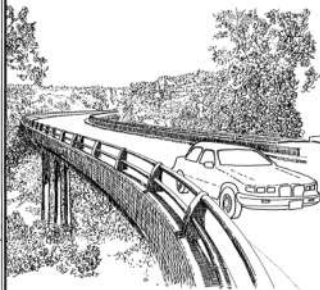
CONCRETE BOX

STEEL GIRDER

ROANOKE RIVER BRIDGE milepost 114
 (spans 1028' over the Roanoke River and the Norfolk Southern Railroad)

CAST ON-SITE

HARRY FLOOD BYRD MEMORIAL BRIDGE milepost 63.9
 (spans 1045' over the James River & Kanawha Canal, the Chesapeake and Ohio Railroad, and US Route 501)



Scale: 1"=40'-0"

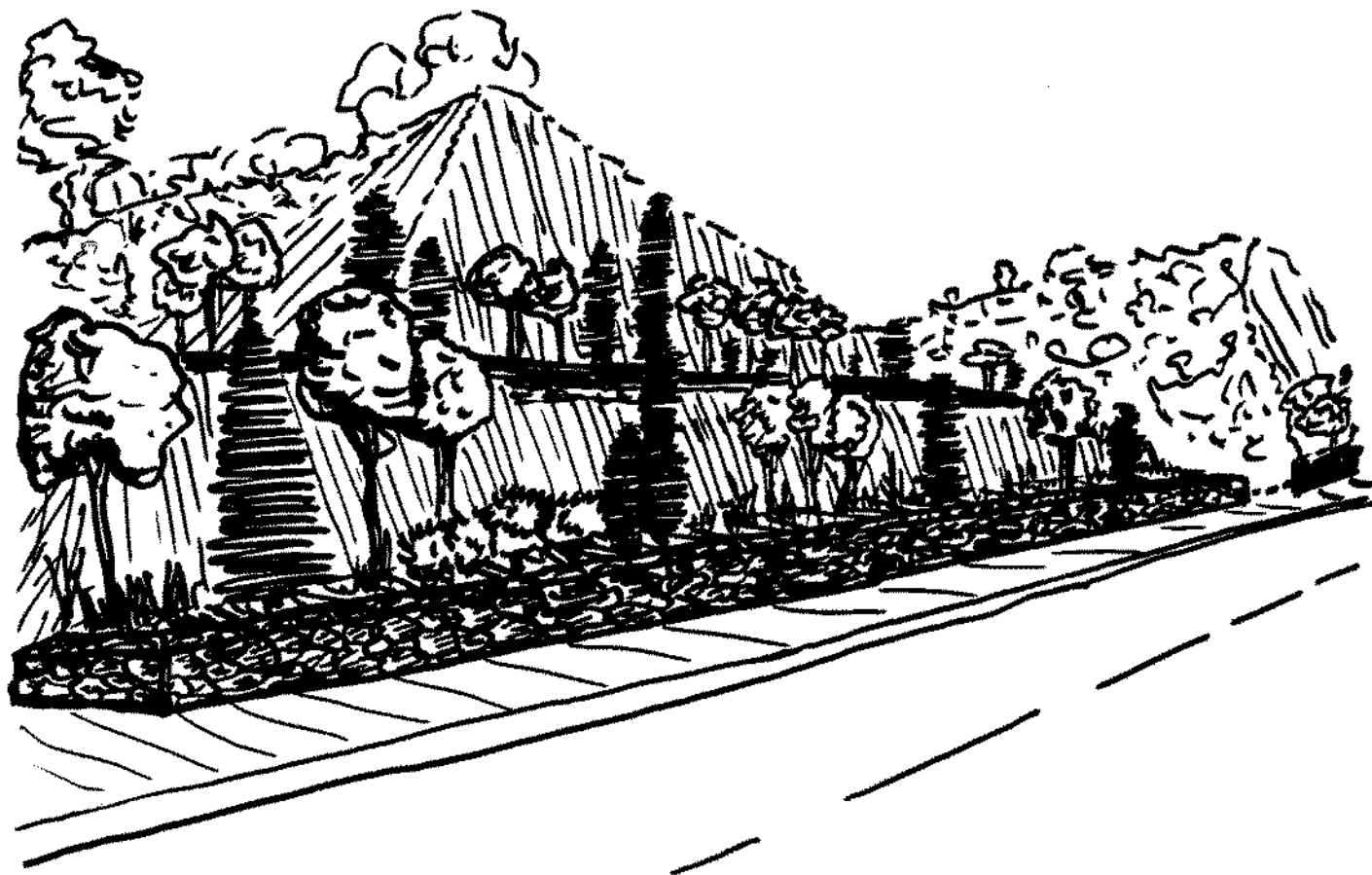
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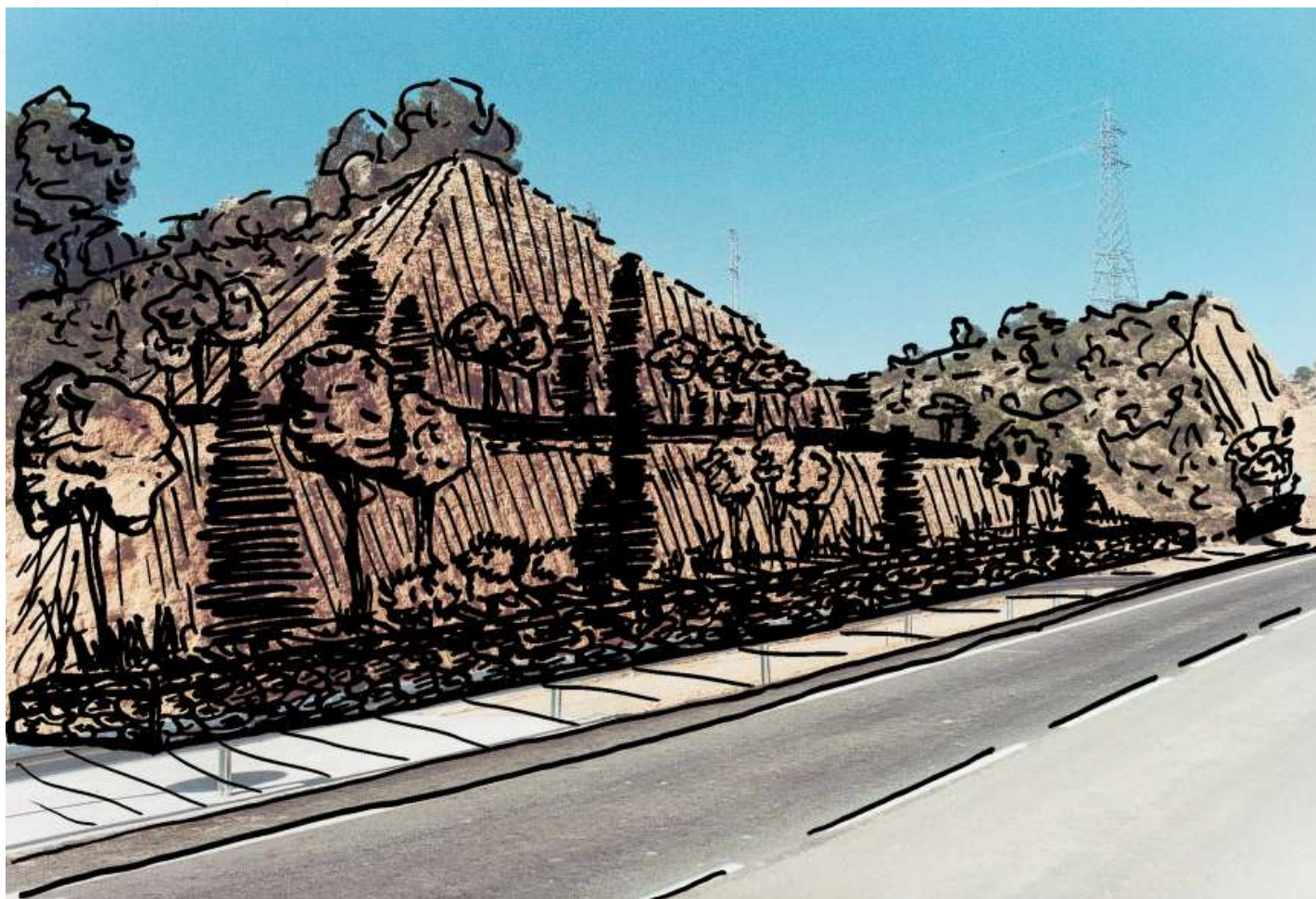
REPRODUCED BY: Matt Stumant, 1997
 NATIONAL PARK SERVICE
 ROADS & BRIDGES RECORDING PROJECT
 UNITED STATES DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
 BLUE RIDGE PARKWAY
 BURKHOPE COUNTY
 NORTH CAROLINA
 SHEET
 22 OF 28
 NC-42
 HISTORIC AMERICAN ENGINEERING RECORD
 IF REPRODUCED, PLEASE CREDIT: HISTORIC AMERICAN ENGINEERING RECORD, NATIONAL PARK SERVICE, NAME OF DELIVERABLE, DATE OF THE DRAWING


















Ministerio de Fomento
 Secretaría de Estado de Infraestructuras
 y Transportes

Dirección General de Carreteras
 Subdirección General de Planificación

SERVICIO DE PROYECTOS

FECHA 28 de Octubre de 1996

SU / REF. 20-CS-2560

NUESTRA / REF. p.

ASUNTO

DEMARCACION CARRETERAS ESTADO EN
 VALENCIA.

Avda. de Blasco Ibañez, 48
 46071 - VALENCIA

DESTINATARIO
 DEMARCACION CARRETERAS ESTADO EN
 VALENCIA.

Modificación de Orden de Estudio. Proyecto de Construcción.
 "Acondicionamiento. CN-232 de Vinaroz a Santander, entre su p.k. 28,1 y p.k. 42,8.
 Tramo: La Jana - Venta del Aire".
 Red de Carreteras del Estado.
 CASTELLÓN

En base a la propuesta formulada el 5 de Mayo de 1989 por la Unidad de Carreteras de
 Castellón de la Plana, la Dirección General de Carreteras emitió, el 5 de Julio de 1989, bajo clave
 20-CS-2560, una Orden de Estudio para la redacción de un Proyecto de Construcción que
 contemplara el acondicionamiento de la CN-232, entre las localidades de La Jana y Venta del Aire.

Este Proyecto que aparece incluido en el Programa de Acondicionamiento del Programa
 Operativo Anual (2) de 1994, una vez redactado fue remitido para su supervisión y posterior
 aprobación técnica a la Dirección General de Carreteras.

Asimismo, se llevó a cabo el preceptivo período de consultas sobre el contenido de la
 Memoria-Resumen del Proyecto, a results de la cual, la Dirección General de Política Ambiental
 consideró que el contenido de las contestaciones recibidas era significativo y que, por ello, debería
 de tenerse en cuenta en la realización de los correspondientes Estudios de Impacto Ambiental.

Como respuesta a lo anterior, la Demarcación de Carreteras del Estado en Valencia ha venido
 desarrollando una revisión del Proyecto redactado. De dicha revisión se deduce que las medidas que
 en el mismo se incluyen sobre protección del medio ambiente resultan muy insuficientes. Pero,
 además, esta revisión también ha servido para reconsiderar parte de las actuaciones inicialmente
 previstas, de forma que se produce una modificación que, aún aplicándose a casi 4 km. más de

Ministerio de Fomento	
20-CE-2580	
1.	Indicarlo en el nuevo Proyecto a ninguno de los sistemas de evacuación previstos en el Proyecto, las elevadas presiones (de p.a. 38,7 y 39,3 y 37,5) que tiene dichos canchales, indicándolo (aproximado, en longitudes)
2.	Recomendarle de la manera prevista en el proyecto indicado (pero los p.a. 37,7 y 40,3, independientemente a su nuevo estado, pero los p.a. 38,2 y 39,4 (39) m. de longitud de nuevo Estado) en lugar de los 7,5 km. equivalente correspondiente, evaluando adecuadamente al sistema a Cero y modificando el emplazamiento de Vivienda de Venta del Sur.
3.	Indicarlo en este proyecto del emplazamiento de la CE-232 hasta su actual punto kilométrico 46,1, siguiendo los estudios, aplicados entre los p.a. 27,3 y 31,5, donde el emplazamiento del Proyecto de clase 20-CE-2580, lo cual supone la zona de emplazamiento de un nuevo emplazamiento del Barrio de Calabazas en el punto kilométrico 46,1, para el Proyecto de clase 20-CE-2580 y 10-CE-2170, para asegurar que los estudios en la instalación de una y otra de los Proyectos indicados.
4.	Tener en consideración de la atención dedicada en el Proyecto indicado y la promoción de la carretera sugerida y la cantidad prevista en las previsiones de la misma, ampliando los tipos ya existentes a que se necesitan mismos.
De base, pero, a este lo indicarlo, con una fecha al Sr. Sr. Francisco General de acuerdo con su modificación la Gruta de San Juan de la Cruz (20-CE-2580), según sea la Dirección General de la Gruta de San Juan de la Cruz, para el Proyecto que designe la Sección de la Dirección de Carreteras del Estado de Valencia, para indicar el sistema de ejecución profesional para la indicación del Proyecto 10-CE-2580.	
Tipo:	Proyecto de Construcción 10-CE-2580.
Situación:	Carretera N-232 de Valencia a Sagunto. P.A. 27,3 al 40,3 (distancias en metros). Tramo: La Jara - Venta del Sur.
Clase:	Acumulación.
Obras a proyectar:	• Construcción y mejora de alcantarillas a otros de Hídrico, aplicación de los datos a acumulaciones.

El presente estudio se refiere con las corrientes oceánicas en las proximidades de la costa y aguas profundas que rodean al marino.

características:

- Velocidad de progreso: 80 knots.
- Caballo: 5,000 hp.
- Almuerzo: 2 a 1,300 m.
- Resumen de observaciones: Clasificación Clase 30 de la Instrucción 2.1.1.1.

Descripción del Proyecto:

El estudio se refiere a la investigación de las Corrientes de Estado.

Presupuesto aproximado: 5,000 millones de pesos.

Este estudio con sus resultados deberá ser enviado para su revisión a la Subcomisión General de Tecnología y Ciencia.

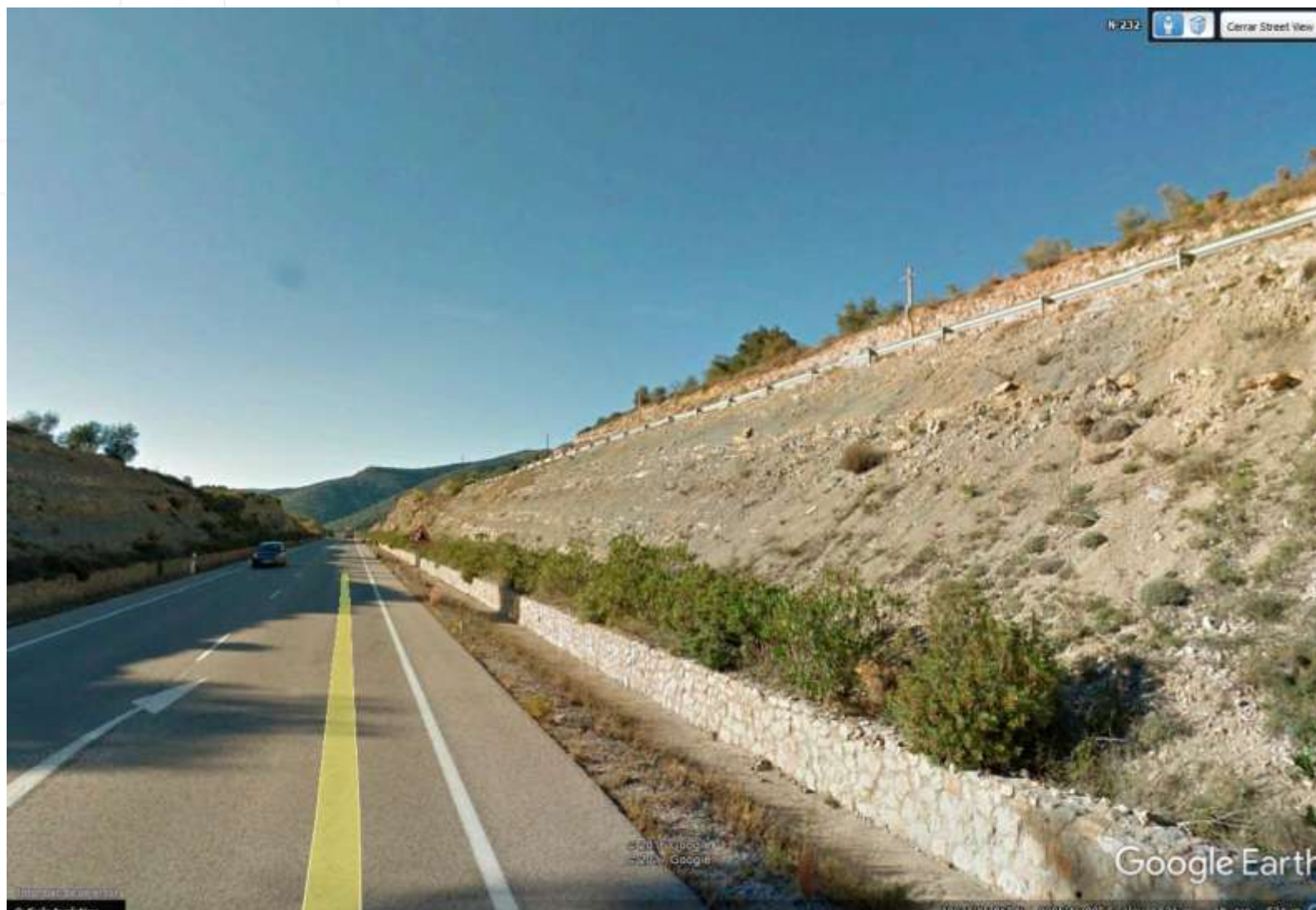
Lo que se menciona para su conocimiento y efectos.

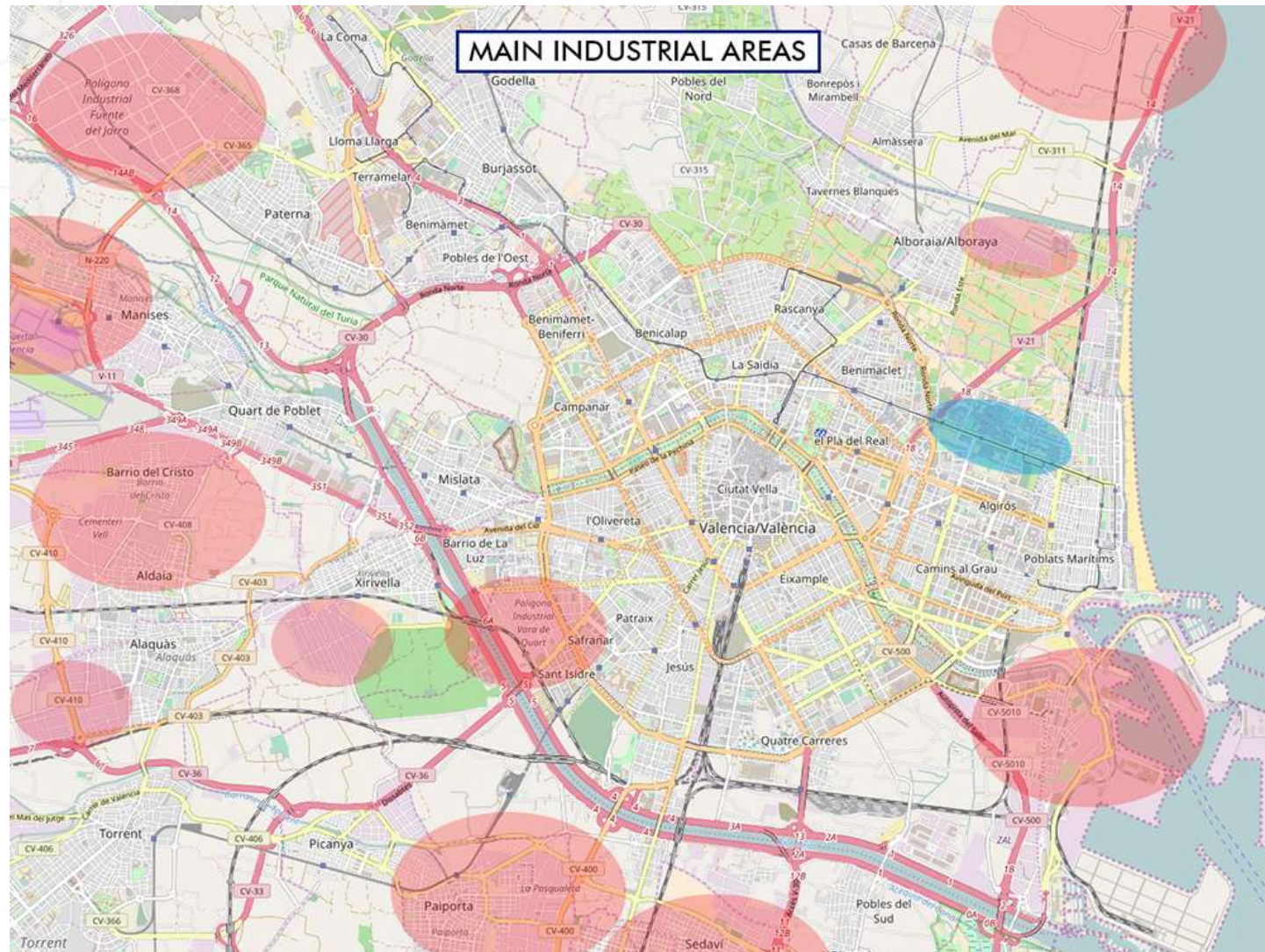
POR EL SERVIDO:



Fdo.: Daniel J. López Linares

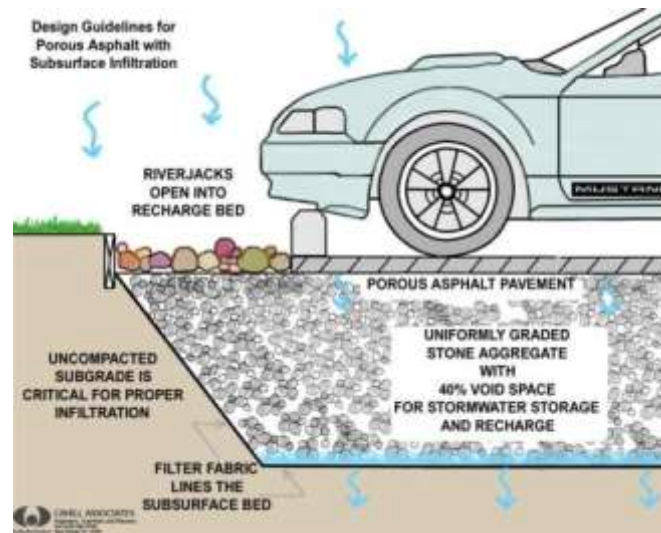
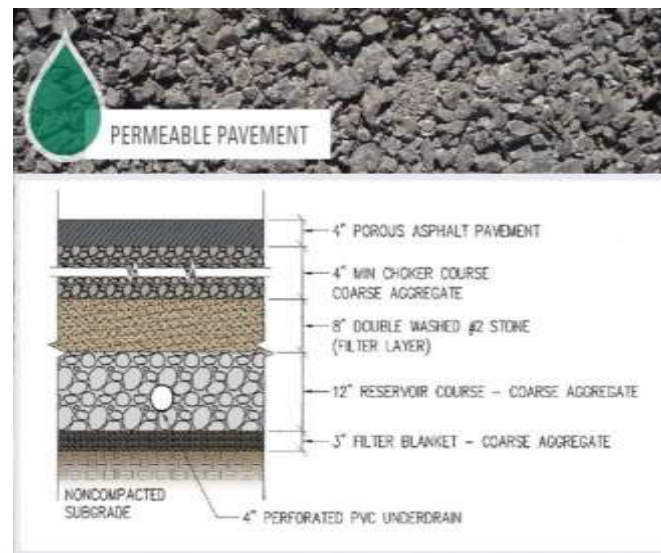
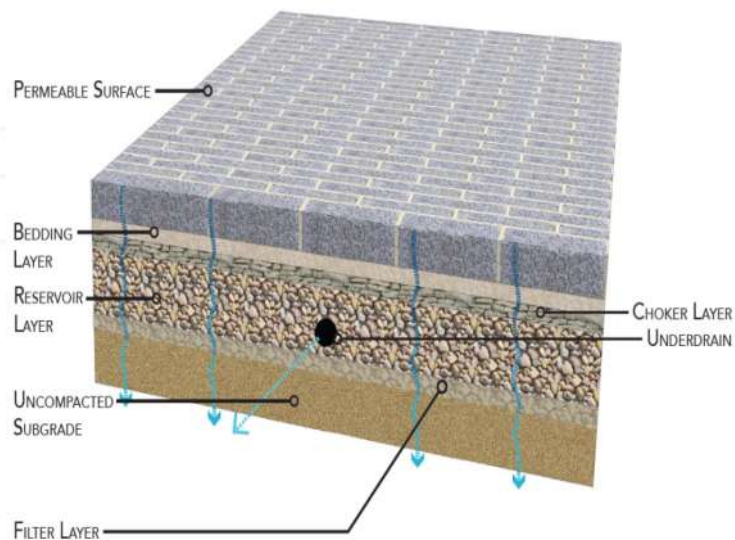
- b. Supresión de la variante contemplada en el proyecto entre los p.k. 29,8 al 31,0 aproximadamente, manteniendo en líneas generales el trazado actual entre los mismos, eliminando de este modo el impacto ambiental producido por la citada variante y en base a la reconsideración, al respecto, del Estudio de Impacto Ambiental ahora realizado.
- c. Toma en consideración de una variante entre los p.k. 31,2 y 32,2 (Barranco del Molinar), respetando el cauce del barranco que discurre junto a la carretera, protegiendo el pie de la misma con escollera a situar en la plataforma existente entre carretera y variante y procurando, siempre y en todo caso, no afectar a la ladera de la montaña de características inestables, todo ello en base a lo indicado al respecto por el antes citado Estudio de Impacto Ambiental.
- d. Sustitución de la Travesía del Barrio de Anroig prevista entre los p.k. 32,2 y 33,2, en el Proyecto inicialmente redactado, por otra nueva que evite la afección de un barranco allí existente y de una zona de edificaciones más o menos abandonada.
- e. Supresión de la variante inicialmente prevista entre los p.k. 33,5 y 34,6, aprovechando la carretera actual y los bancales colindantes y evitando de este modo afecciones innecesarias, en particular la de la pinada allí existente.



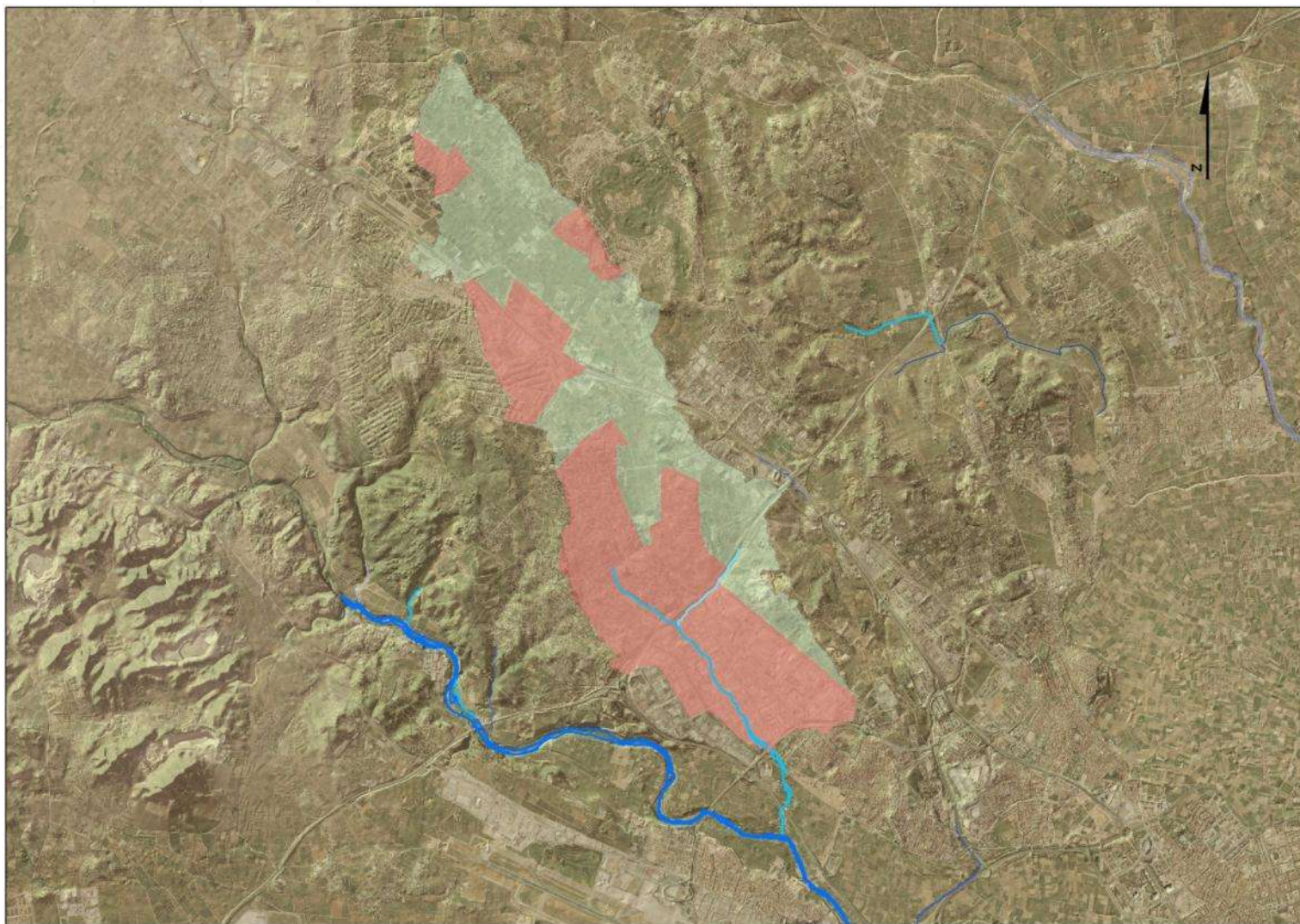


HIDRAULICA

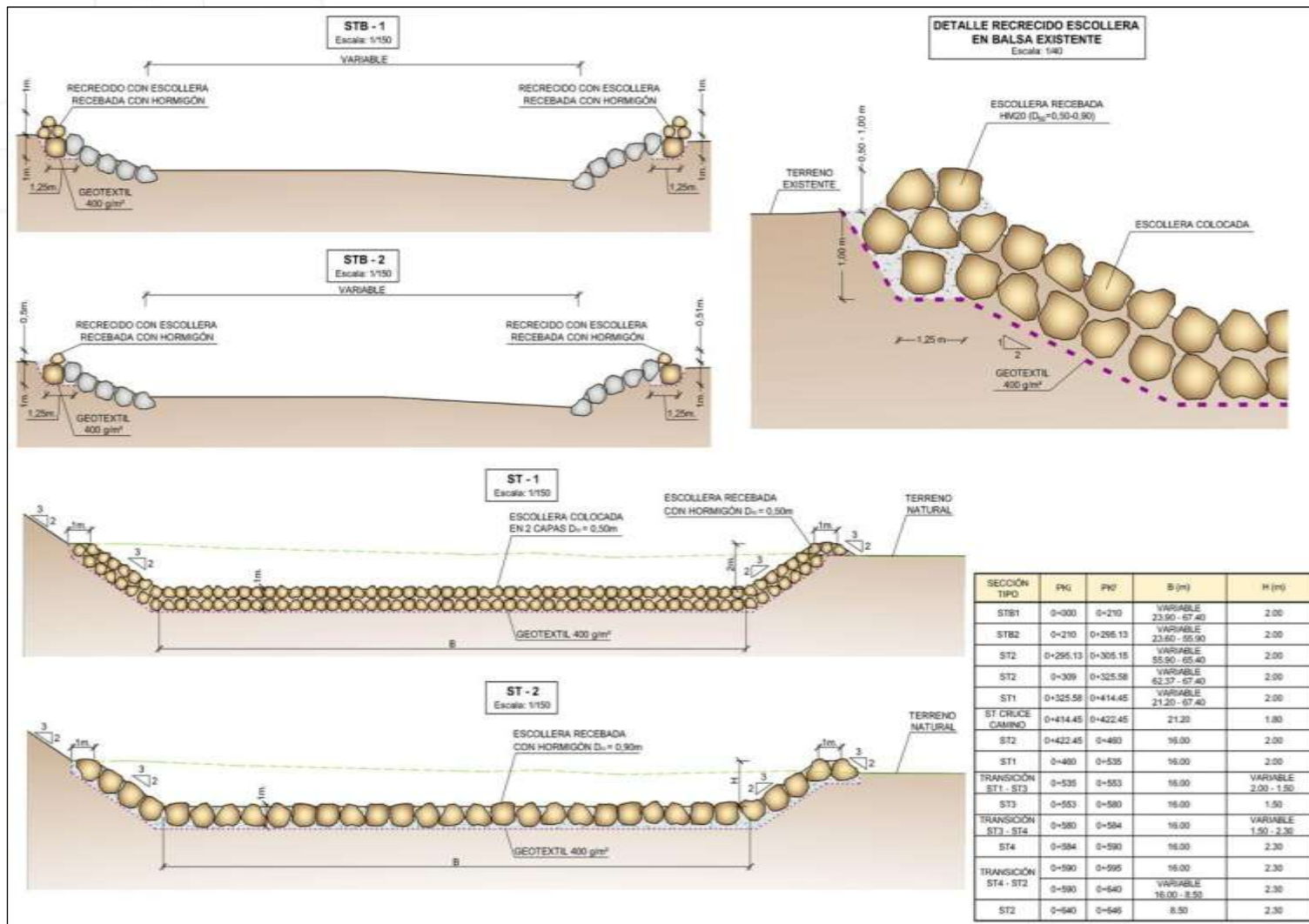














UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA

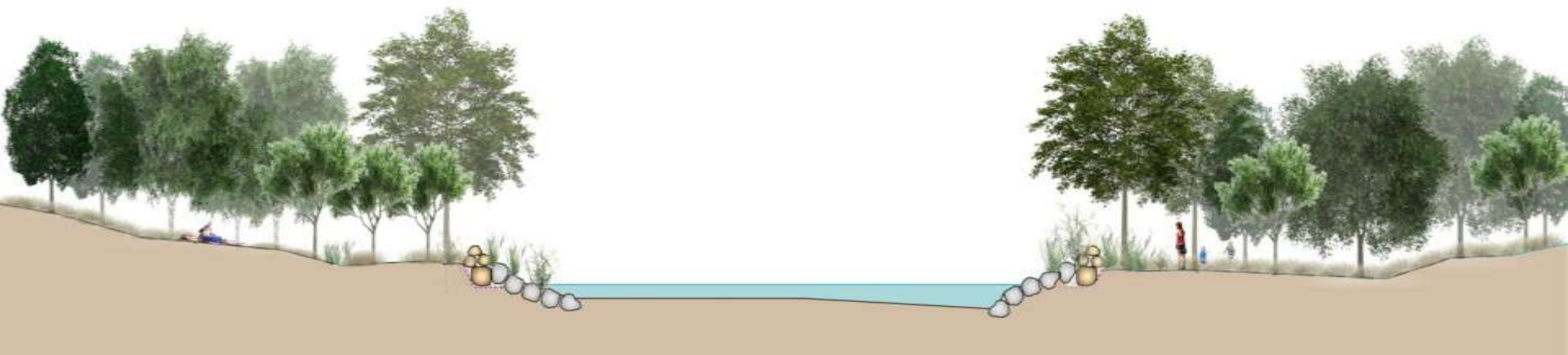
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS
DE CAMINOS, CANALES Y PUERTOS



CAMINOS
UPV

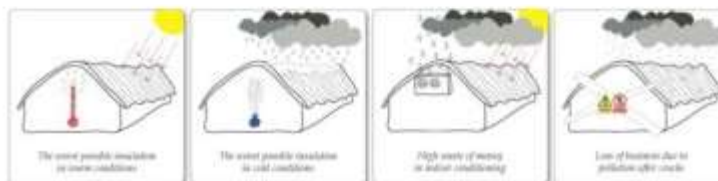


INGENIERIA Y PAISAJE:
INMERSION DESDE EL PROYECTO





GreenTuck



Asbestos Cement Roof (ACR) is one of the biggest environmental and health problems all over the world. Hundreds of millions of asbestos cement roof square meters have been installed and much more are being manufacturing in order to ship them to poor countries.

Hundreds of thousands of people work, study or live under these dangerous roofs.

It is very expensive to remove them, and in the end it is just changing the environmental and health problems to another place. Further more, asbestos cement roofs are the worst possible roof in terms of energy efficiency.

The consequences of this deficiency is a waste of energy and human lives that should (and must) be corrected.

So we introduce GreenTuck - RoofSkin as a great solution for all these problems



Call Now! 2524 512 541 More Info: info@greentuck.com

Technology Partners:

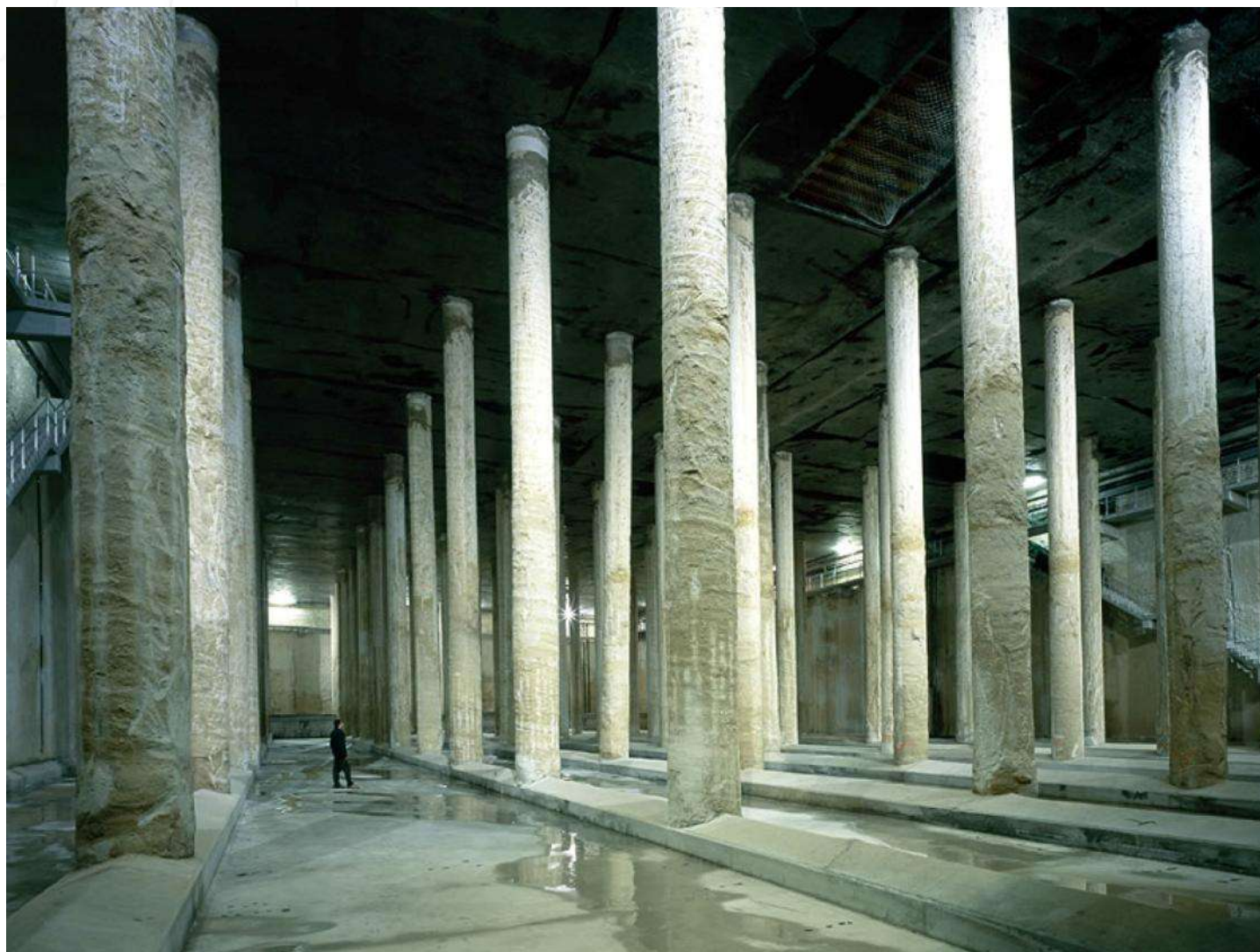








Jueces, aseguradoras, vecinos, etc.



New York City

Overview

New York City has one of the few sources of natural, unfiltered water in the U.S. It is the largest water system in the country operating under an approved filtration avoidance waiver. The abundant reserve of forest, as well as soil with adequate carbon levels, is essential to the Catskill/Delaware watershed's excellent conditions for natural filtration.

Amount of water

1.3 billion gallons per day to 9 million people in New York City.

Program Implemented

MOU stipulated that New York City solicit purchase of **355,000 acres of land** in the watershed between 1997 and 2007, coupled with \$250 million commitment from the city. Conservation easements funded through federal, state, and city strategies including USDA Conservation Reserve Enhancement Program (CREP). **Land was to be purchased from willing sellers and full market price.**

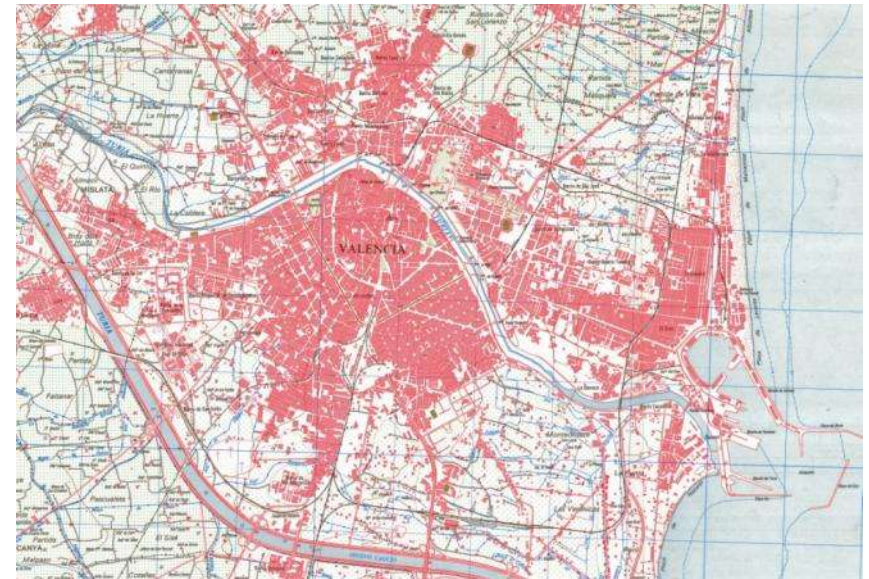
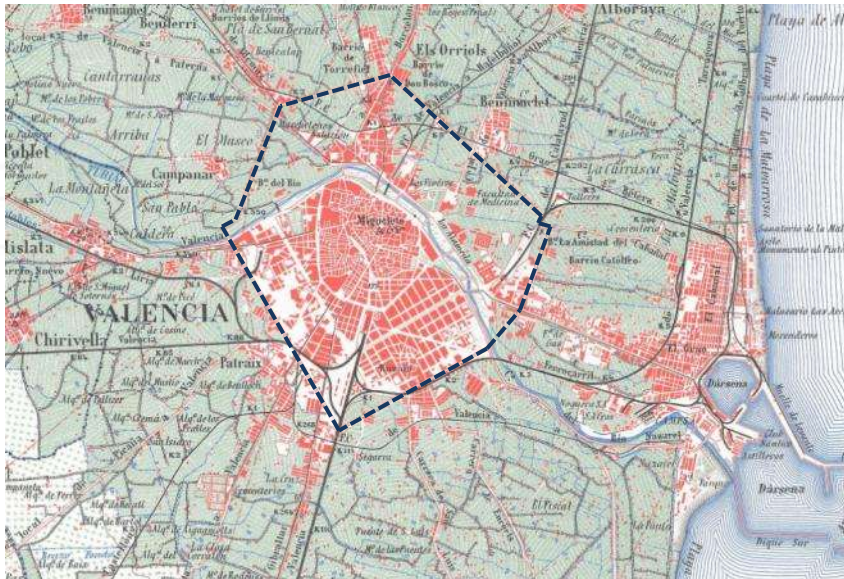
City also shared cost of implementing agricultural, forest and stream BMPs including buffers and setbacks, soil-conserving tilling and grazing practices, stream-bank fencing, and erosion-prevention forestry practices. Watershed Agricultural Council (WAC) **assisted agricultural and forestry communities** with adopting management techniques to protect water quality and enhance economic viability. Conservation easements provided landowners with **annual payments in exchange for maintaining the land in a natural state.**

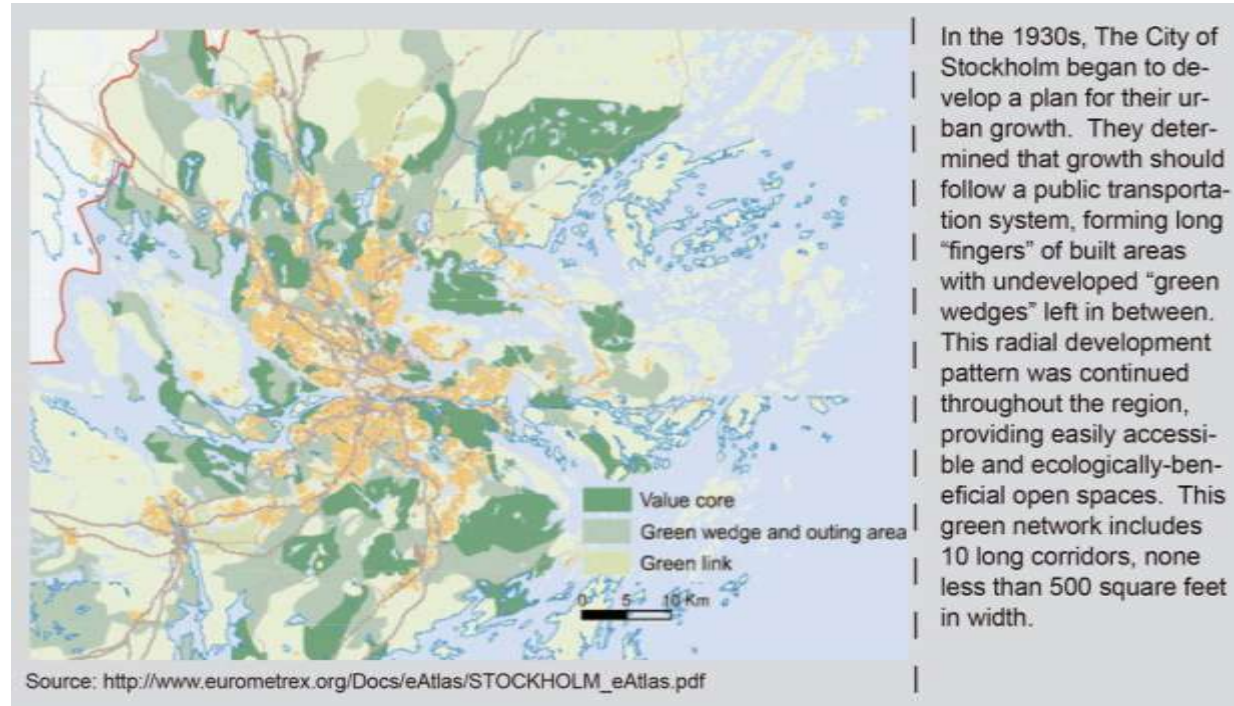
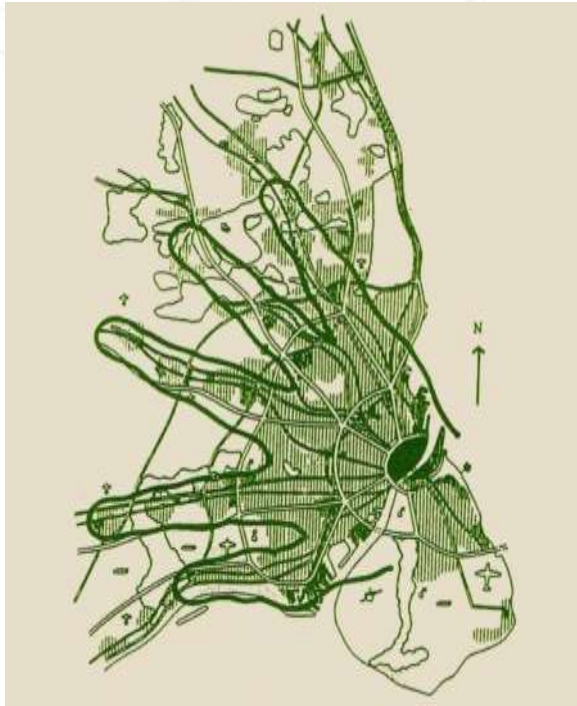
NHS - Energía





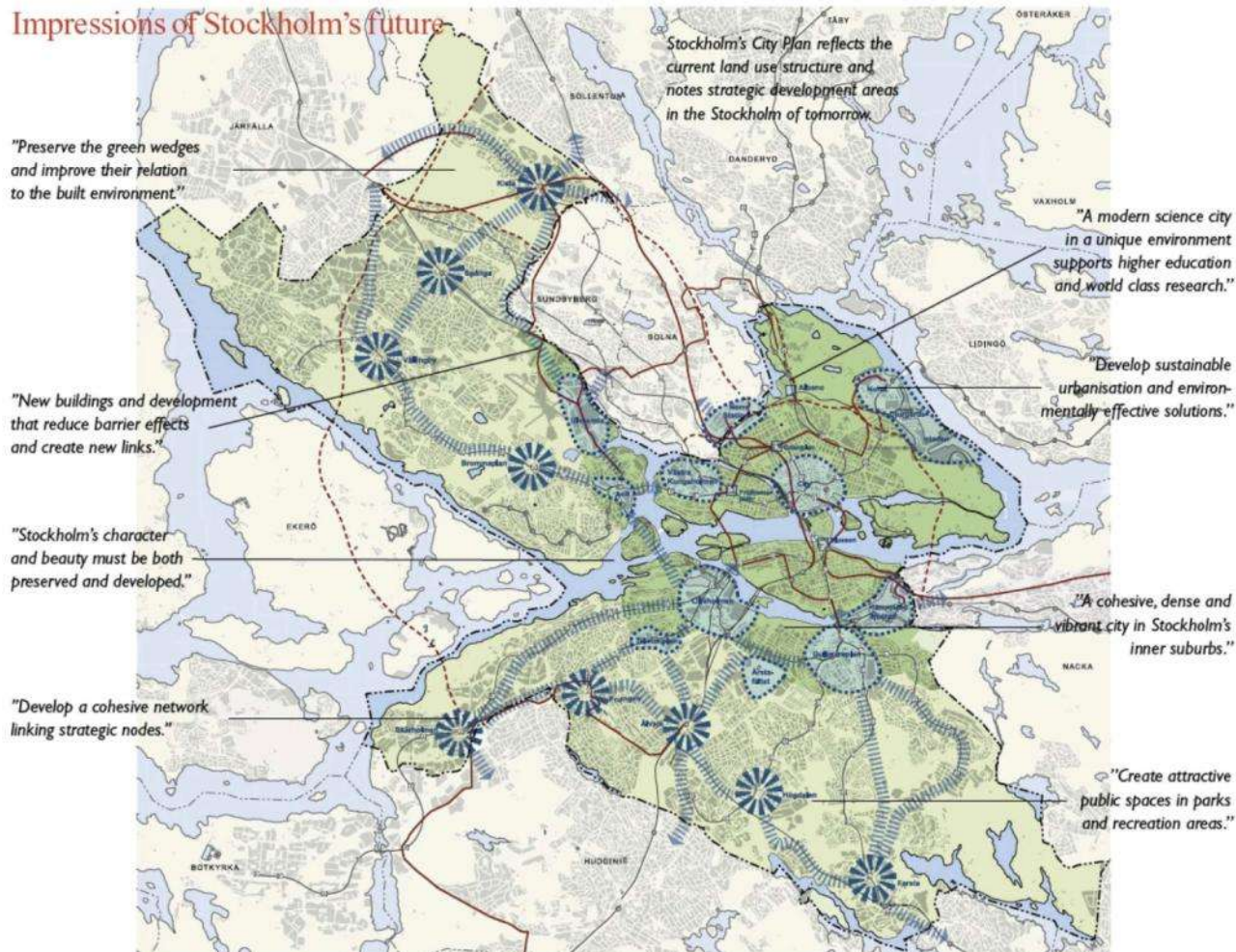
PLANIFICACIÓN URBANA

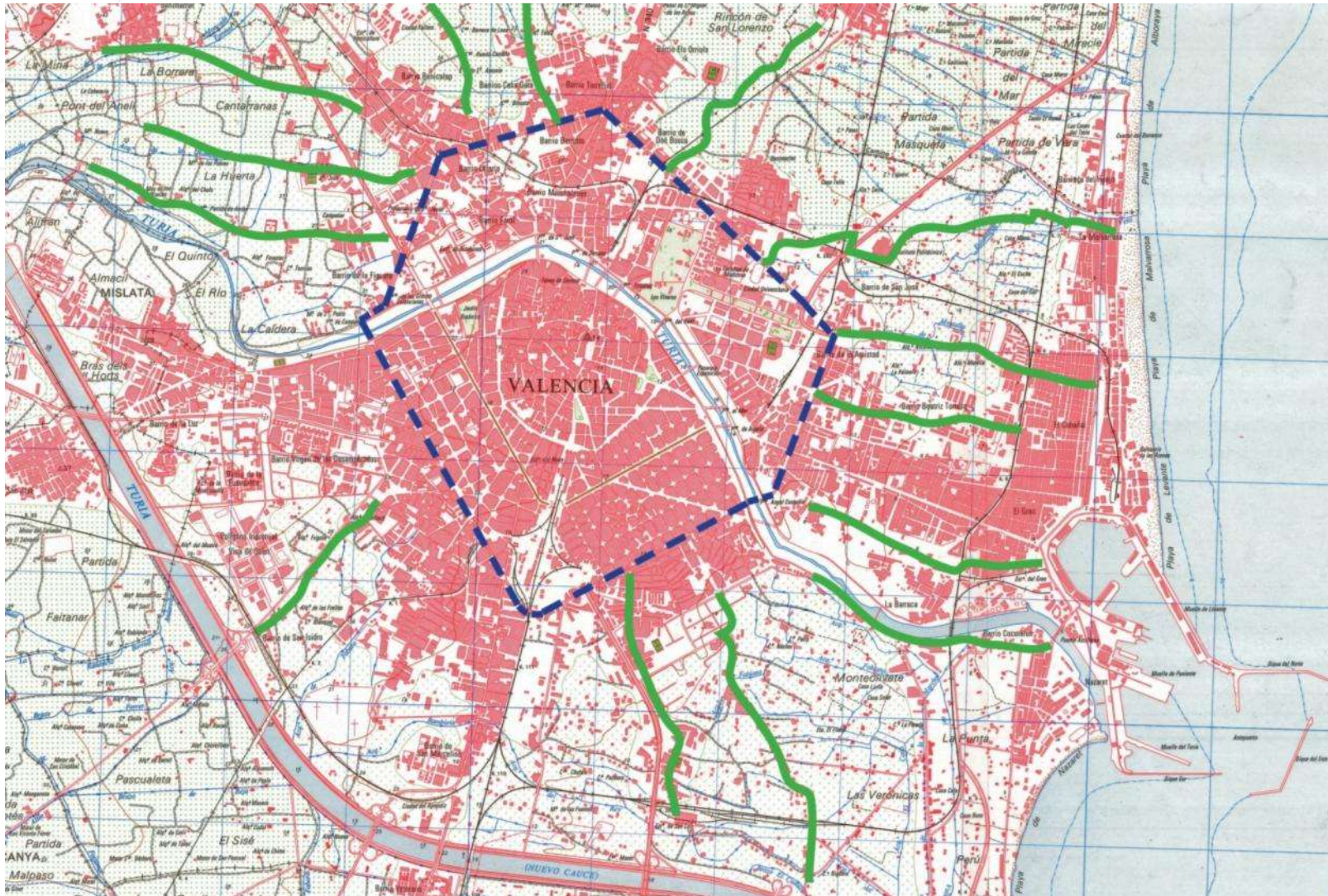


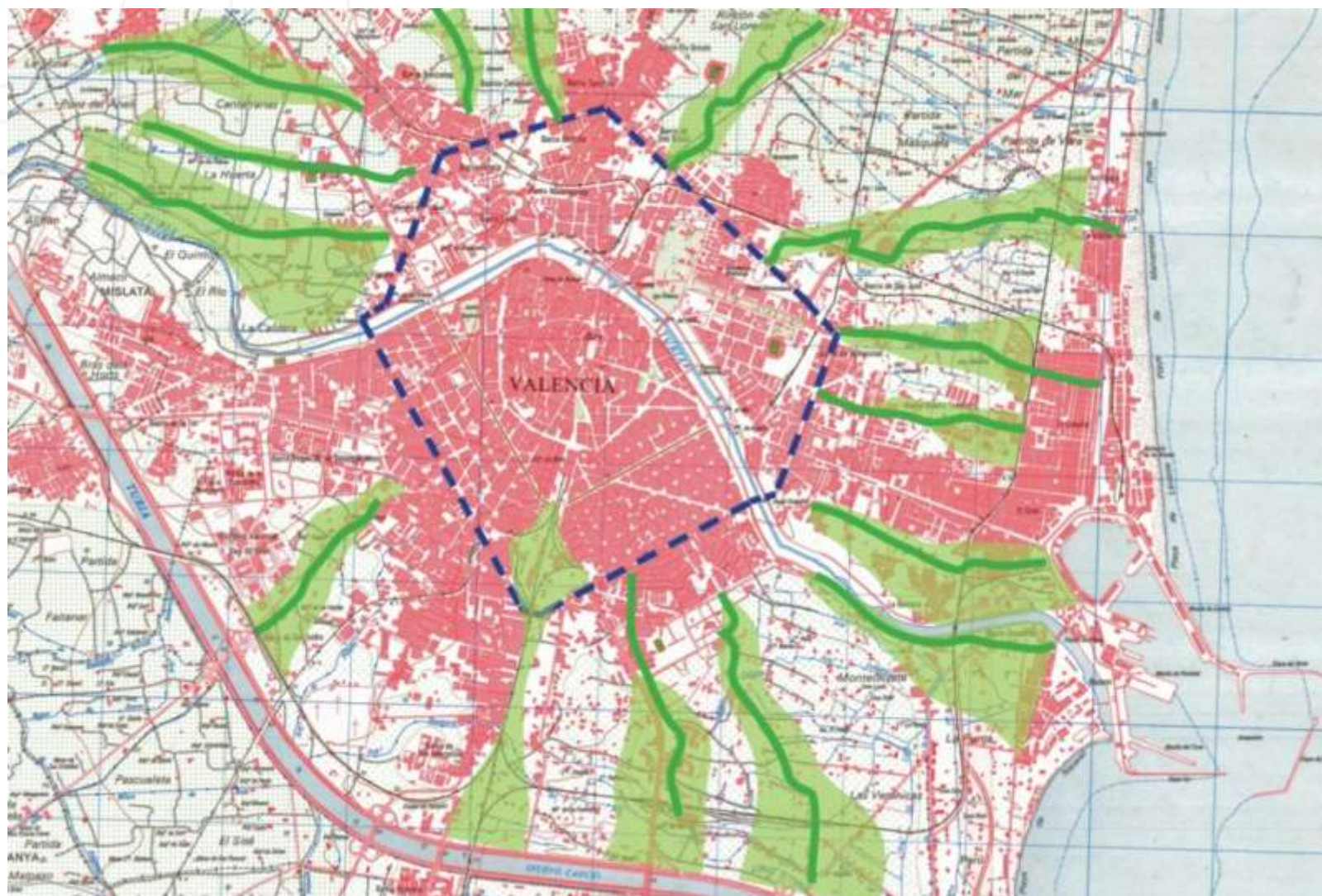


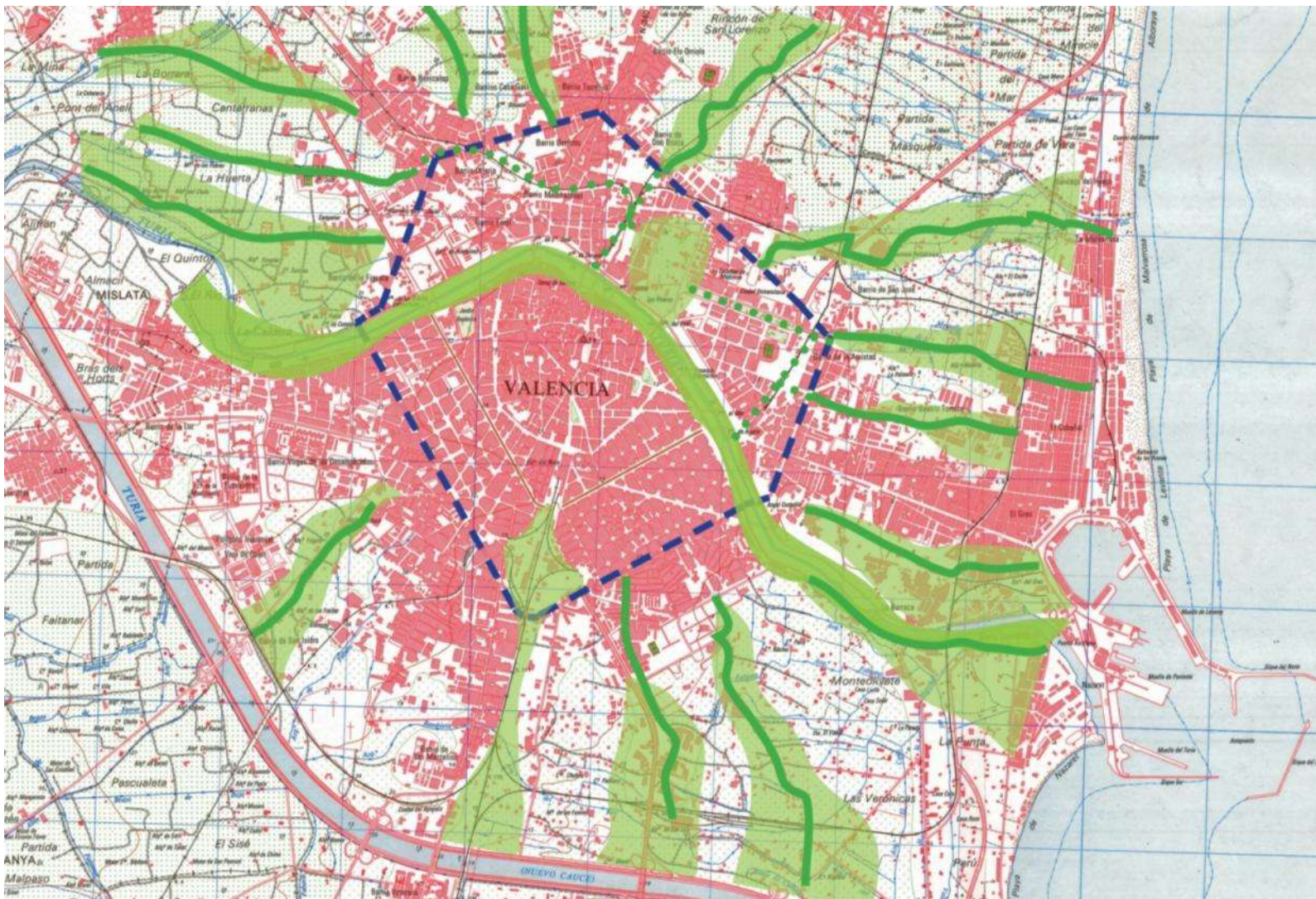
In the 1930s, The City of Stockholm began to develop a plan for their urban growth. They determined that growth should follow a public transportation system, forming long "fingers" of built areas with undeveloped "green wedges" left in between. This radial development pattern was continued throughout the region, providing easily accessible and ecologically-beneficial open spaces. This green network includes 10 long corridors, none less than 500 square feet in width.

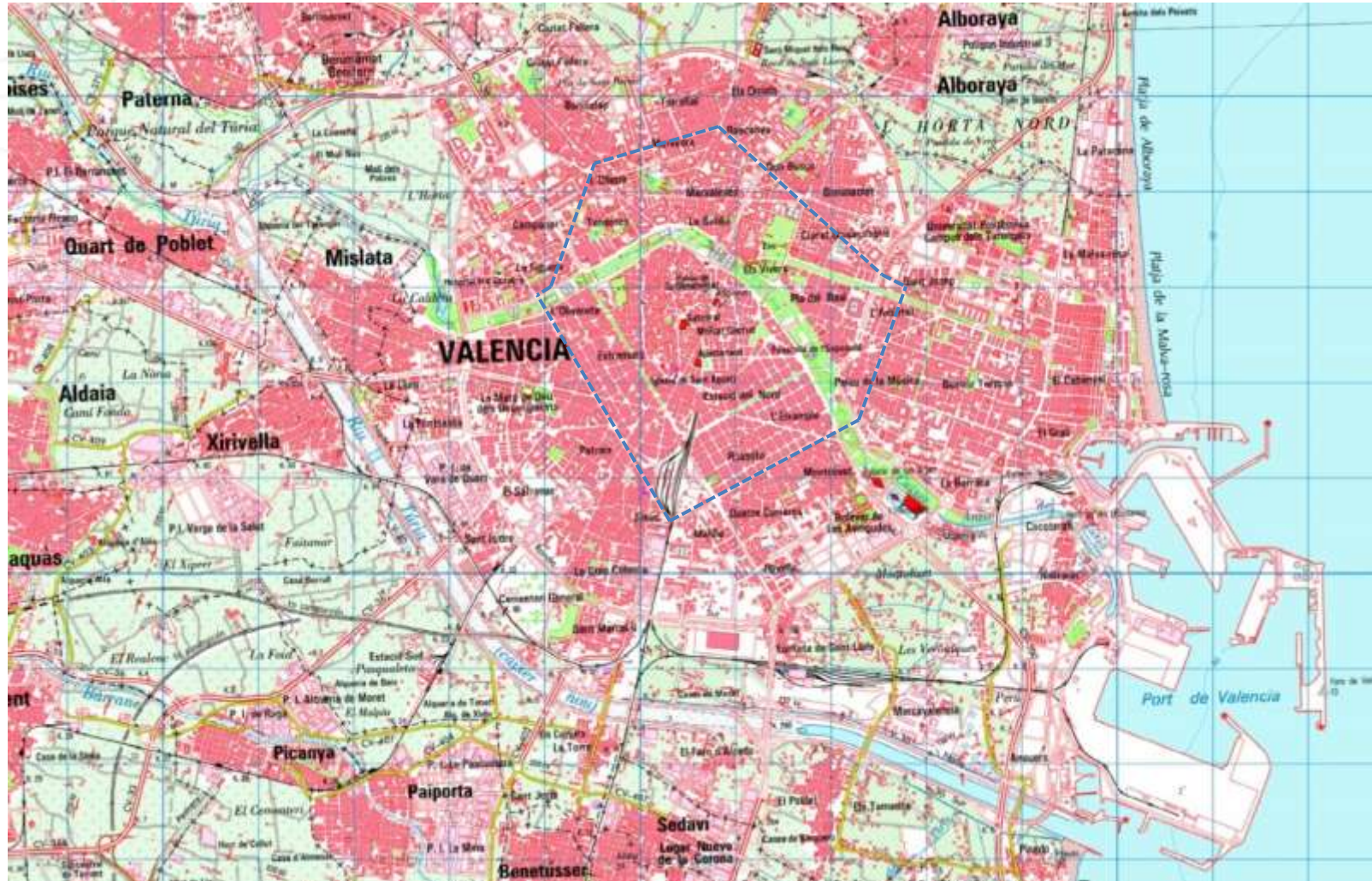
Impressions of Stockholm's future



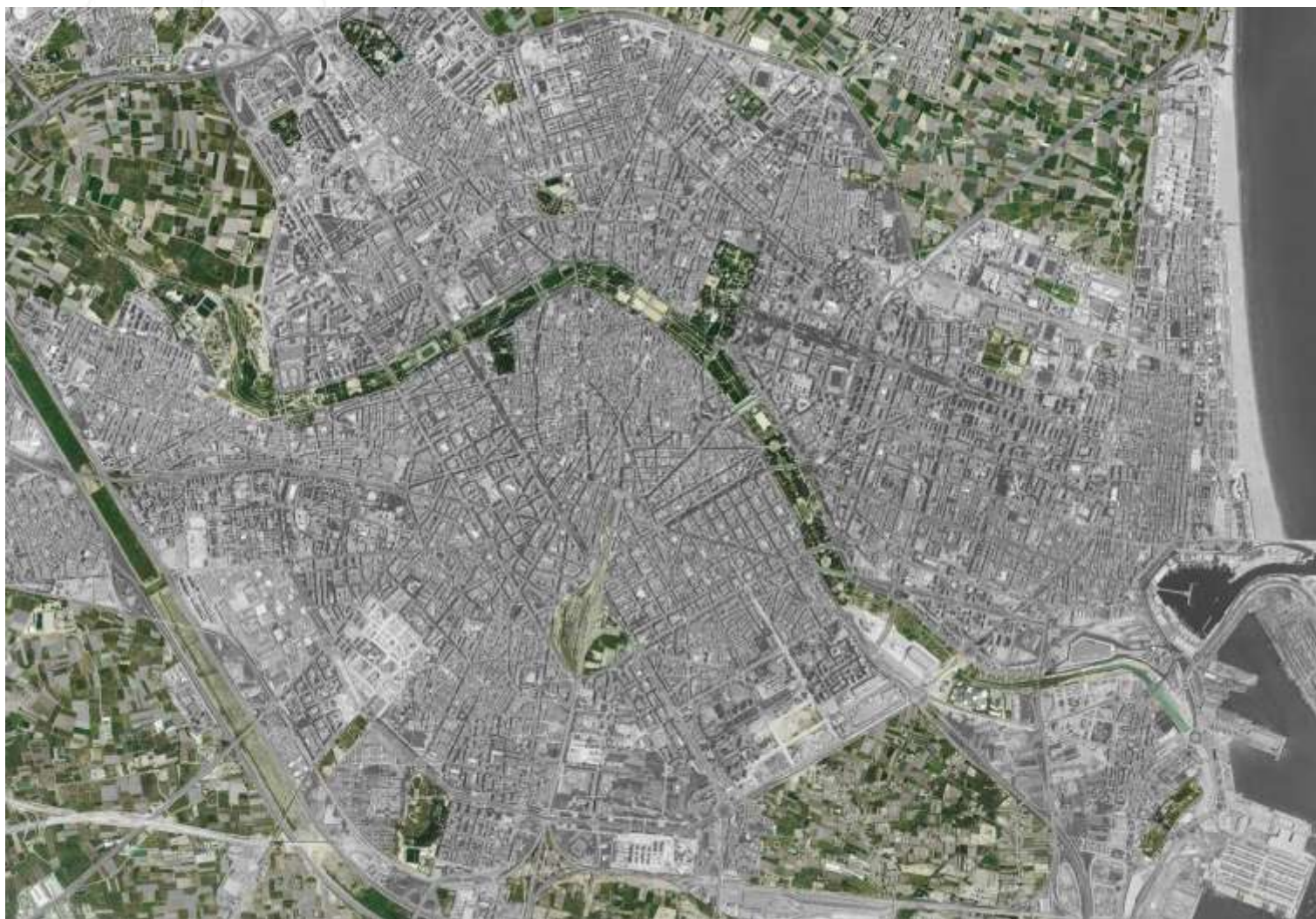


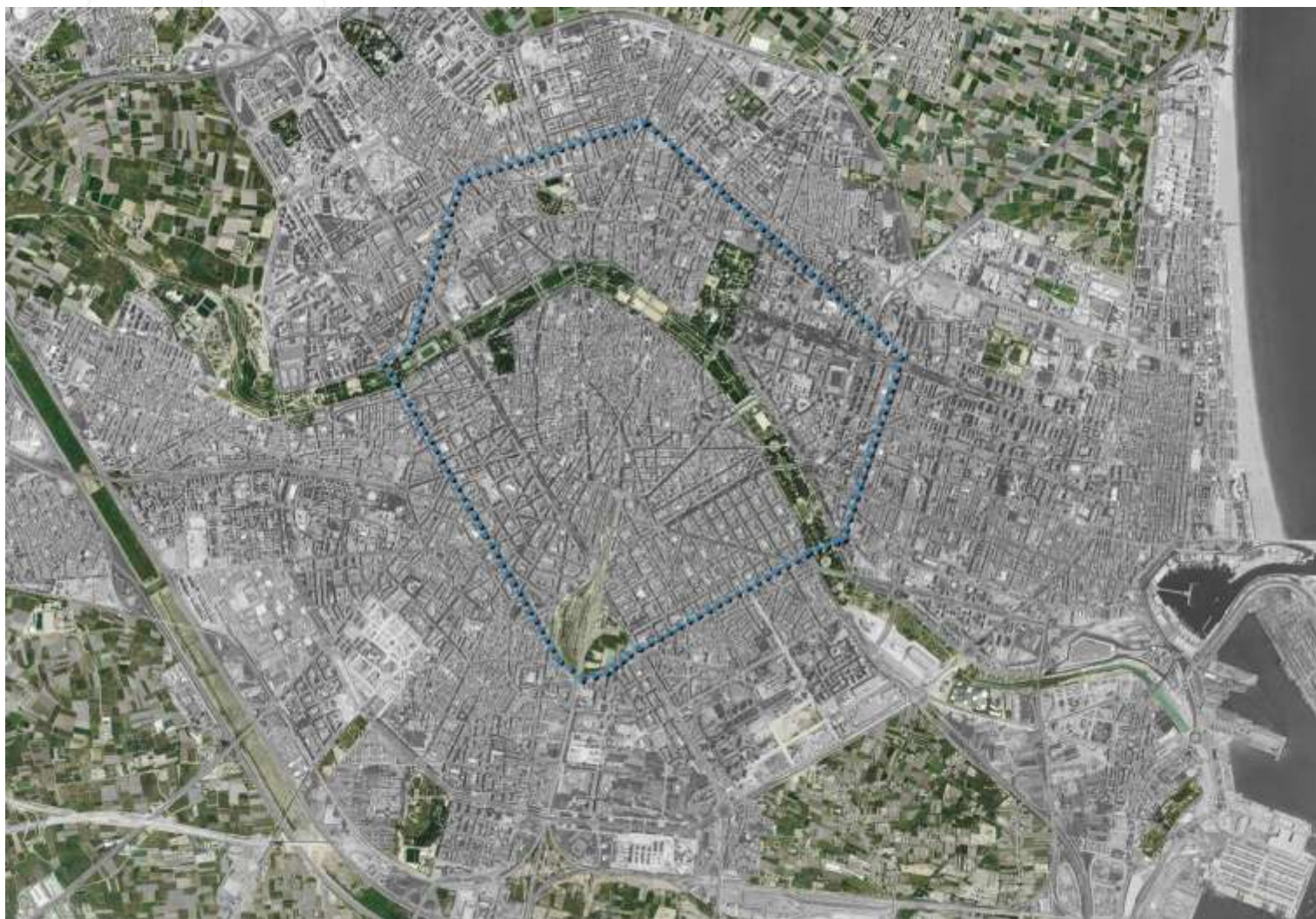




















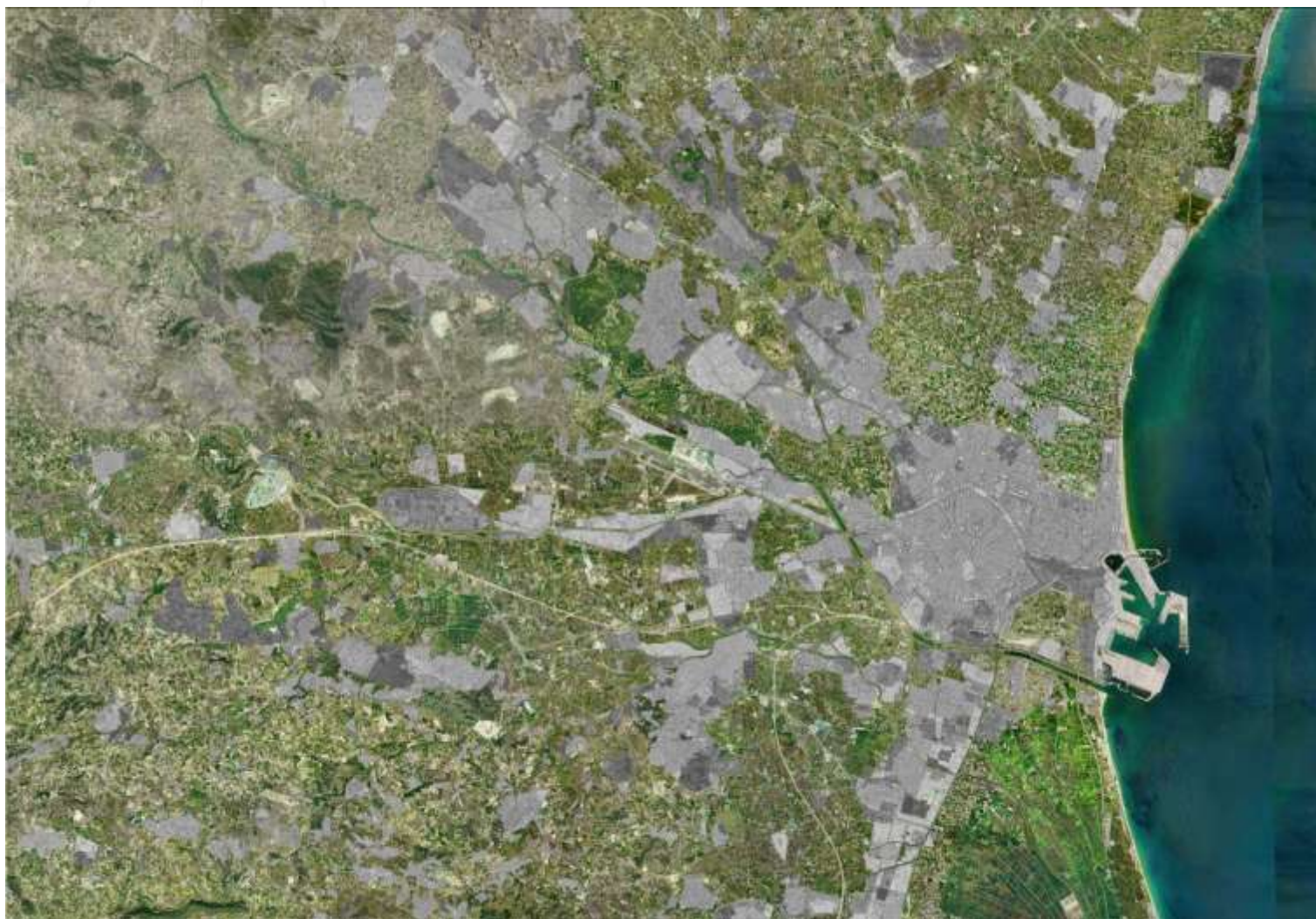


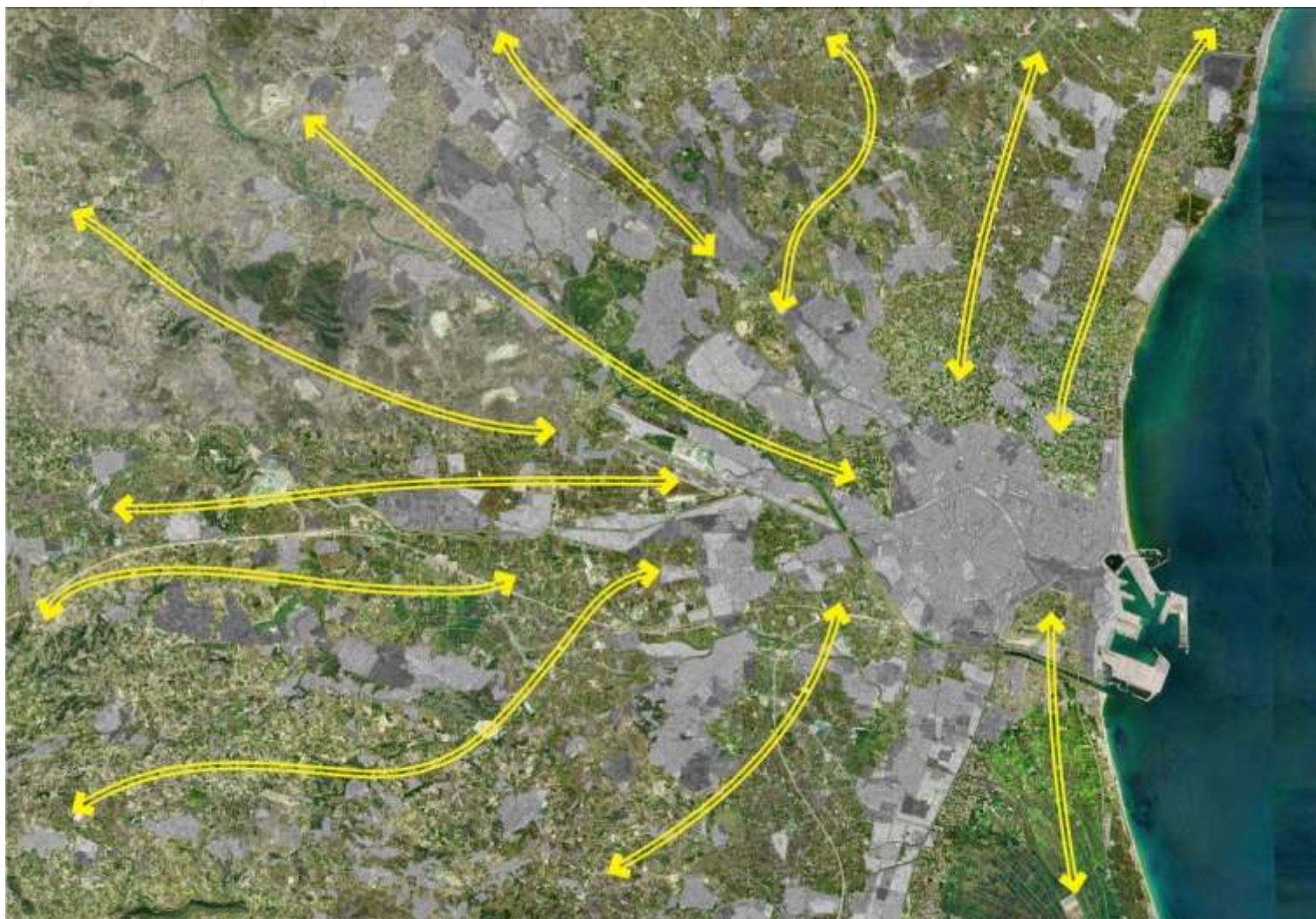


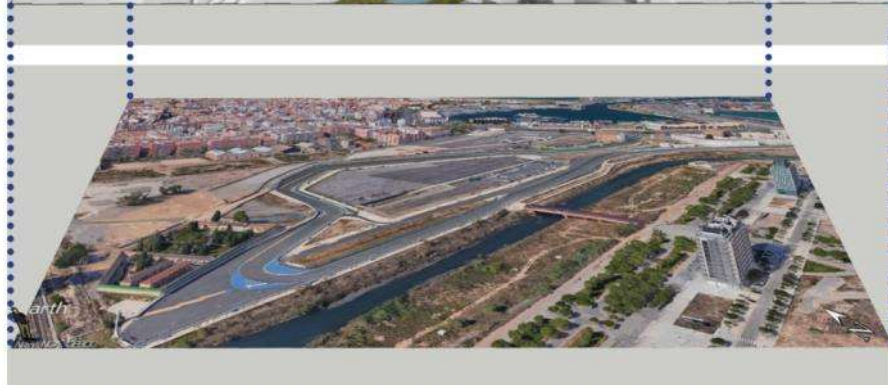












Minimum presence of roads

Massive Open Air Areas for Urban resilience
Dwellings related to New Business Center

Start-Ups Incubator

Houses for researchers,
teachers and students

New awesome
neighborhoods

Trade Center

Business Center

Telecom Tower

Old Bed River Turia
Gardens (with river)



One Ring to bring them all and in the darkness bind them In the Land of Mordor where the Shadows lie

Ash Nazg durbatulûk, ash Nazg gimbatul, ash Nazg thrakatulûk agh burzum-ishi krimpatul.

EL TERRITORIO

NO SE ORDENA.

EL TERRITORIO

NO SE ORDENA.

¡ORDENA!

RESUMEN DE INVENTOS

- Sistemas urbanos de parques y conexiones verdes
- Sistemas regionales de parques y conexiones verdes
- Anillos verdes multifuncionales
- Infraestructura Verde [Urbana]
- Planes de Acción Territorial
- Parques Nacionales / National Trust
- Las Vía Parque
- Arquitectura «pintoresca»
- Ecología del Paisaje
- Planificación en función de las pautas del territorio [Landmarks]
- Land Planning by Landscape Design
- Arquitectura del Paisaje
- Urban/Town Planning
- Landscape Urbanism
- Geodesign: Geography by Design

DESURBANIZACIÓN Y DESINFRAESTRUCTURACIÓN















Robert Moses Parkway Removal Project - Main Street to Findlay Drive
View North toward Whirlpool Rapids Bridge

Robert Moses Parkway Removal Project - Main Street to Findlay Drive
View South toward Downtown Niagara Falls











Reurbanización y Renaturalización de la zona urbana del destino turístico Magaluf (Calvià-Illes Balears)



ZONA URBANA SIN CONSTRUIR

ZONA URBANA CONSOLIDADA



Reurbanización y Renaturalización de la zona urbana del destino turístico Magaluf (Calvià-Illes Balears)



AMENAZAS

RIESGO ALTO INUNDACIÓN
DEGRADACIÓN Y VERTIDOS
REGRESIÓN ESPECIES PROTEGIDAS
INSTALACIONES DISTORSIONANTES



OPORTUNIDADES

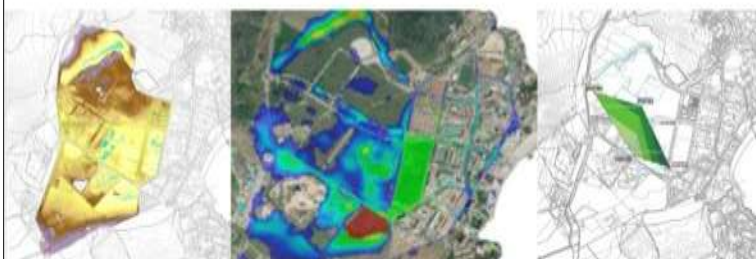
• NO ESTÁ CONSTRUIDO
• VALORES AMBIENTALES EXCEPCIONALES
• IMPLICACIÓN DISTINTOS ACTORES
• CONECTAR A ENTORNO URBANO CONSOLIDADO Y RURAL



Reurbanización y Renaturalización de la zona urbana del destino turístico Magaluf (Calvià-Illes Balears)



ESTRATEGIA 1: CONOCIMIENTO



Estudio medio físico y natural



Reurbanización y Renaturalización de la zona urbana del destino turístico Magaluf (Calvià-Illes Balears)



- Protección áreas críticas
- Estudios de competitividad
- Restauración de zonas húmedas
- Criterios Revegetación ELPs





LIFE-PLETERA: Desurbanización y restauración de la funcionalidad ecológica de los sistemas costeros de la Pletera T.M. Torroella de Montgrí



02. PLANIFICACIÓN URBANA. CRONOLOGÍA

- Plan Parcial 1982
- Abandono proceso urbanización
- Deslinde – ZMT 1998
 - Suelo público
 - Suelo protegido
- Revisión POUM 2002
 - Suelo no urbanizable



Imagen 1: Sector urbanístico Plan Parcial de la Pletera. 1982
Imagen 2: Cambio límite ZMT. 1998



LIFE-PLETERA: Desurbanización y restauración de la funcionalidad ecológica de los sistemas costeros de la Pletera T.M. Torroella de Montgrí



03. PROYECTO LIFE-PLETERA

Acciones

- Excavación sistema de lagunas (permanentes y temporales)
- Restauración sistema dunar
- Retirada paseo
- Retirada material de relleno
- Retirada calles asfaltadas
- Excavación antigua cota original



Imágenes de trabajos de retirada, excavación y demolición. 2015-2018



LIFE-PLETERA: Desurbanización y restauración de la funcionalidad ecológica de los sistemas costeros de la Pletera T.M. Torroella de Montgrí



05. RESULTADOS

→ Modelos hidráulicos

- Incremento capacidad laminación de agua – reducción intromisión agua marina
- Red hidrológica ininterrumpida
- Sistema de lagunas costeras (HIC prioritario)
- Medida de adaptación cambio climático



Imagen 1: Modelo circulación agua superficial de la Pletera en 2014
Imagen 2: Modelo circulación agua superficial de la Pletera post restauración



LIFE-PLETERA: Desurbanización y restauración de la funcionalidad ecológica de los sistemas costeros de la Pletera T.M. Torroella de Montgrí



03. PROYECTO LIFE-PLETERA

Objetivos

1. Restaurar la funcionalidad ecológica del sistema litoral
2. Ser un proyecto demostrativo
3. Incrementar efecto sumidero CO₂.



Imágenes de la zona de la Pletera antes de la restauración. 2014.

VAYAMOS RESUMIENDO

Frenemies: Landscape Architects & Engineers

[April 22, 2013](#) / [Leda Marritz](#)

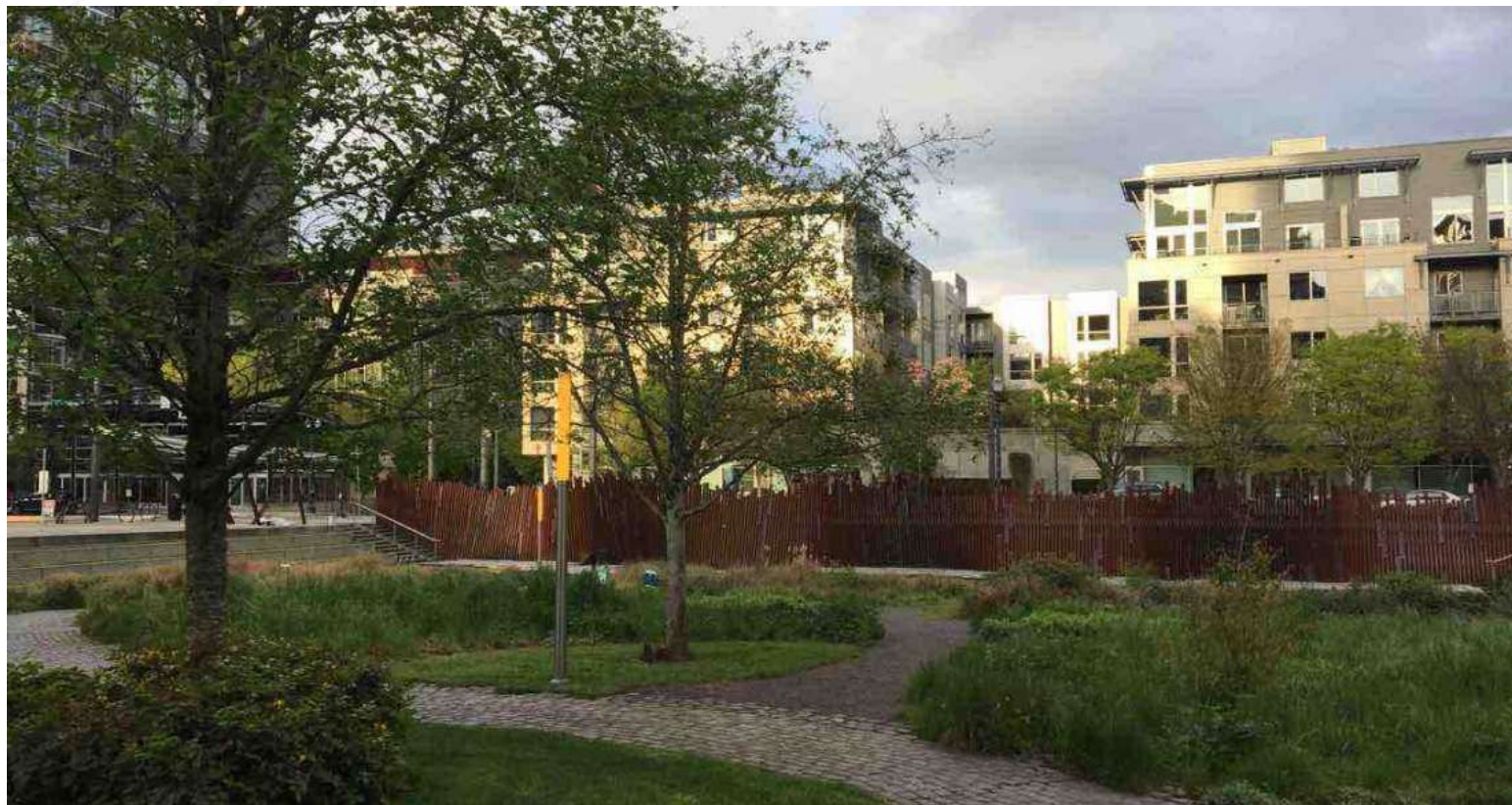
Back in [Fall 2011](#), the **Ontario Association of Landscape Architect's** publication, Ground Magazine (page 8), published an article titled **"Best Friends/Worst Enemies: Landscape Architects and Engineers,"** by Adam Nicklin and Victoria Taylor. This article started an insightful discussion on the similarities and differences between landscape architects and engineers. Some of the Essentials differences they point out are:

	Engineers	Landscape Architects
Strengths	Very pragmatic Good at building things and making something function	Adept at presenting ideas and capturing the imagination of someone quickly Good at telling a simple story about how the thing works and comparing it to other options
Deliverable	Large report you have to really sift through to get the gist	Cuts to the chase
Typical approach	Compartmentalized: focused on fixing the problem at hand	Holistic: look at the whole picture, what is the best overall solution looking at the big picture; eg look at consequences of potential design decisions on social and environmental context
Willingness to try new approaches	Often want to do the same proven things over and over	Often want to do something different
Liability	Higher than landscape architect	Lower than engineer

Personally, I have found these differences become especially stark when it comes to designing trees as stormwater infrastructure. Yet while these differences can indeed make it frustrating for the two disciplines to work together, designing trees as stormwater infrastructure is a great example of why we also need each other. Successful design of trees as stormwater infrastructure requires a collaborative, holistic approach that can satisfy the needs of both specialties.

In many cases we will need more than just landscape architects and engineers.

UN ÚLTIMO EJEMPLO - RESUMEN



Tanner Springs Park in Portland (Gregory Scruggs)

UN ÚLTIMO JARDÍN



NO SE TRATA DE MINIMIZAR
IMPACTOS, QUE LO ES EN PARTE,
SINO DE TRABAJAR PARA MEJORAR EL
SISTEMA TRAS EL PROYECTO:
ES DECIR... ■

Design For Nature

a step beyond sustainability



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DE CAMINOS, CANALES Y PUERTOS



CAMINOS
CIVIL



INGENIERIA Y PAISAJE:

INMERSION DESDE EL PROYECTO

MUCHAS GRACIAS POR SU ATENCION

BUENAS TARDES Y BUENA SUERTE

RAFAEL NARBONA

I.T.A. - PAISAJISTA (A.E.P. - I.F.L.A.)

www.designfornature.org