城市发展:拓展边界、高度、建筑限制及社区发展

Urban Centers: Growth Boundaries, Height and Building Limits and Neighborhood development

对所有成功的城市规划而言,确定市区扩展边界是非常关键的,像琅琊台组团这种快速发展的地区尤其如此。城市发展边界的确定,一方面可以使现有的土地增值,而得以充分利用,另一方面又可以限制对其它土地类型的侵占,确保农业、旅游、娱乐、自然风光,水和空气质量管理和生态保护区等用地不为城市发展所吞并。只要可能,城市和沿海村庄应限制在北部地区的山脚下或海滨陆角的北端,而不应建在陡坡、山顶或海滨陆角上。

根据我们的实地调查,我们的规划确定所有的建筑不能高于琅琊台的海拔高度。这是为了维护大山的美丽景观,确保琅琊台作为整个地区最重要的象征和最突出的标记。为此,我们建议任何建筑物高度不能超过海拔一百米,这样可以充分突显这个地区地形的起伏。这个高度限制不是指建筑物本身从地面的高度,而是绝对海拔高度。当然,历史建筑、标志性建筑和其他旅游设施建筑可以例外。此外,在海拔30米以上的地区也不应再搞建筑。冲积平原上我们没有规划任何建筑,所有的只是一望无边的农田和广阔的大地。

在拟定总体布局时,我们仔细考虑了社区的自然边界问题。社区边界的巧妙设置,会加强社区居民的归属感和认同感。城市布局的动力与经验体现在对其自然边界的定位上。比如大海和沙滩,山脉和风景,空旷的公园,热闹的城市广场,机关单位,以及社区间的公共交通等,都是我们勾画城市特征的线条。而市区的地形、水面、和各种景点,则塑造了城市的整体形象,是一个城市区别于全体城市的重要标志。另外,我们还必须非常谨慎的对待城市标志性建筑。如作为城市权力中心和城市象征的市府大楼及政府建筑群,它是整个城市文化和文明的象征。这种标志性建筑必须具有壮观的景色和特别的建筑风格。有些历史建筑、重要的文化建筑和其他标志性旅游设施建筑可以安排在城市拓展边界之外,保持城市的活力和多样性。一些具有历史和人文景观意义的小村庄,应得到妥善保护及利用,它不但可以促进旅游业发展,并保持了这个地区的特征和多样性。琅琊组团的规划就是遵循了这些原则,严格清楚地确定了城市建设的拓展边界、突出城市功能团的线条、巧妙勾画社区的自然边界、谨慎地塑造了城市的标志性建筑,从而,构造一个全新的城市整体形象。

Urban growth boundaries are essential to any successful city planning effort, especially where rapid development is expected, like that of Lang Ya City Group. Such boundaries are established to offer both a higher quality use of developed land and to limit the consumption of valuable land for other resources: farming, tourism, recreation, scenic beauty, water and air quality management, and bio eco reserves. Where possible, cities and coastal villages are nested north into foothills or coastal headlands, and not on steep slopes, summits or headlands.

It is clear from our investigation that no building structure should be higher than Lang Ya Tai, to preserve the beauty of the mountain, and to ensure that Lang Ya Tai remains the most important symbol in the area — the pre-eminent brand of Lang Ya. We recommend that no buildings be built with a height exceeding 100-meters above sea level, thus providing a distinct contrast to the regional topography. Height limits are not from the ground of the building, but are the absolute altitude. Of course, historic, symbolic, and other tourism structures may be an exception. In addition, building construction is not allowed in areas where the ground is higher than 30-meters above sea level. No building construction is planned in the identified flood plains – only farmland and open space.

The master plan has been developed with careful consideration of Edges. Edges help set the bounds of neighborhoods where a community can feel engaged and connected to the place they live. The energy and quality of experience in city plans comes from the edges: the sea and its beaches, mountains and the views, parks as open space, active city squares, institutional lands with social activities, and neighborhoods transitioning one to the next. We can outline the character and integrity where topography, watercourses, and views are considered important, and begin to establish the branding for the City Group. Exceptions should always be taken carefully; prominent City Hall and government buildings are good reasons, within city boundaries, for special exemptions that promote cultural and civic symbols. These symbols should have spectacular views and status. Also, historic, culturally significant and recreational structures can be carefully integrated outside the growth boundaries for vitality and diversity to the planning program. Small village preservation and adaptive reuse in specialty areas will benefit tourism and maintain the character and diversity of the region. Within these guidelines, our plan for Lang Ya City Group strongly defines bold and clear edges for experience and for growth.

到2020年,琅琊组团内80%的目标人口将在农田区以北的城区居住。这种人口密度是经济发展的重要条件,并同时兼顾琅琊旅游度假公园和生态绿地发展,以及保持其空间景观的特点。随着经济的发展,海滨陆角可开发用地的减少,人们对于休闲娱乐的要求会越来越强烈。当旅游、娱乐和休闲为人们所接受,提供这种休闲旅游的场所便十分重要。我们总体规划中,规划了一座生态的城市,并称之为水晶城。这座美丽的水晶城将满足人们游览风景区公众方便地前往风景区和海滩的要求。然而,城区的发展又可以将自然绿地人为地密度的集在城区,否则它将破坏我们赖于生存和发展的自然资源和美景。滨海地区的土地是最珍贵的稀有资源,如果我们千方百计地保护它,保持其生态稳定性和景观的秀丽,那么它将始终是个巨大的聚宝盆,提供巨大的经济发展机会。

下表列除了2020年各个市区的目标人口情况。

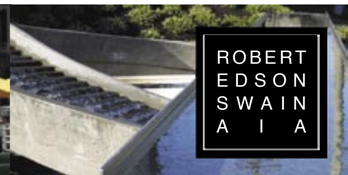
85% of the 2020 target population of Lang Ya City group resides in the urban areas north of the Specialty Farmland. It is this population density that creates the critical mass for economic success, and simultaneously allows for eco green land and the spacious character of Lang Ya Tourism Park. Demand for resort and recreational living will expand as the economy grows and developable coastal lands diminish. As the tourism, recreational and leisure benefits are understood, it will be essential to offer appropriate access. It is our intention with the development of Crystal City to have a controlled and practical solution to this demand – a large number of people will have easy access to the natural beauty. But development, which might otherwise destroy that beauty, is contained within the high-density community. Coastal land is a most important and limited resource. It can remain a powerful source of wealth, eco-stability, and aesthetic joy if we consider solutions to preserve it while providing real access.

The population table shows the target population for each urban area in 2020.

人口规模和密度		Population & Densities	面积 (平方公里)	人口密度 (每平方公里人数)	目标人口	城镇总人口
			Square km	Population per sq km	Target Population	Town Total Population
1.1	琅琊公园村	Lang Ya Park Village	1.0	5,000	5,000	
1.3	海洋研究所社区	Marine Institute Community	0.4	6,250	2,500	
2.0	水晶城	Crystal City	2.0	15,000	30,000	
3.0	温泉度假村	Health Spa & Resort Village	2.0	3,000	6,000	
3.1	企业旅游村	Entrepreneurial Tourism Village	1.5	6,250	9,400	
3.2	南岸旅游村	South Coast Tourism Village	0.9	6,250	5,600	
4.0a	琅琊镇中心	Lang Ya Town Central	2.7	15,000	40,500	74,500
4.0b	琅琊镇市区	Lang Ya Town Urban	2.0	10,000	20,000	
4.0c	琅琊镇郊区	Lang Ya Town Suburban	2.0	7,000	14,000	
5.3	南头旅游村	South Point Village	1.5	5,000	7,500	
6.0a	泊里镇中心	Boli Central	4.3	15,000	64,500	97,300
6.0b	泊里镇市区	Boli Urban	2.4	10,000	24,000	
6.0c	泊里镇郊区	Boli Suburban	1.4	6,250	8,800	
	市区人口总计	Total Urban Population	24	9,900	237,800	
	重工业总人口	Heavy & Medium Industry	6			
	轻工业总人口	Light & Medium Industry	8			
	开发区总面积	Total Developed Area	38			
	琅琊规划组团总面积	Lang Ya Planning Area	100	2,378		

现在世界范围内都流行新城市主义。新城市主义之所以盛行是因为他一贯主张社区内传统的步行街和步行文化。虽然权力、利益、文化认同等多方面复杂因素对一个地区的影响巨大,但步行街和社区之间的交流和连接的影响是不可忽视的。社区不再是一个简单的大商贸区,它需要有当地特色的和文化认同感的社区服务。一个成功的社区包括其美丽的自然边界、社区中心、活动中心、不同层次和不同款式的房子、交通便利、娱乐方便——所有这些都是优秀社区的重要组成。人们希望社区尊敬、期望和认可他们的创造性,而不仅是拥有一个物资的空间。现代设计必须体现社区和人的追求,要有社区的认同感。一个社区所拥有的艺术、建筑、象征物及其他设计标志可以生动地体现出其持续高涨的发展热忱和文化。运用这些进行城市规划的原则所设计的社区,并加上绿色城市设计和超前思维的设计理念,一个成功的新城市的规划蓝图肯定是光彩夺目的。

New urbanism is reflected in the vital and prosperous urban areas from around the world. What makes such urbanism successful is the traditional belief in walk-able neighborhoods. Even where the complexities of power, profit and identity affect such places, the consistent thread is pedestrian and close-knit neighborhoods. Rather than a single commercial and retail district, there needs to be distinct neighborhood services with a local identity. Edge, center, gathering places, multiple scale and different types of housing, easy access to transportation and recreation - all shape the components of successful neighborhoods. It is understood that people respect, desire and value creativity in their living environment, not just the manufacturing of commodity space. Contemporary design must express a district's and its people's aspirations; then it becomes a neighborhood with an identity. Such a district's urban stew of art, architecture, symbols and other design elements can suggest that culture needs to remain a reliable catalyst for development. When these urban planning principles for successful neighborhoods are combined with green urbanism, forward-thinking successful new cities result!



用地现状图
Existing Land Use

车轮山

泊里镇驻地

琅琊镇驻地

龙湾

琅琊台景区

琅琊湾

二类居住用地
Second Class Residential

公共设施用地
Public Infrastructure

教育科研用地
Scientific Research

仓储用地
Storage

产业用地
Industry

同三高速公路
Tongsan Expressway

村庄居住用地
Villages

生态绿地
Bio-eco Greenland

水域
Water Surface

空地
Vacant Land

滩涂
Sludge Area

N

ROBERT
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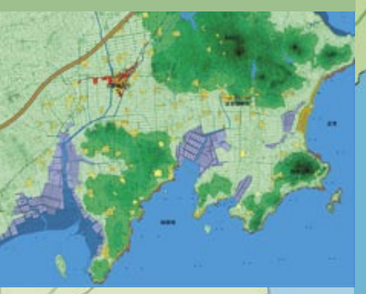
土地利用规划图
Planned Land Use



滨海公路

同三高速公路
Tongsan Expressway

铁路
Railroad

公共设施
Public Infrastructure

高密度住宅
High Density Housing

中密度住宅
Med. Density Housing

低密度住宅
Low Density Housing

高密度旅游区
High Density Tourism

中密度旅游区
Med. Density Tourism

低密度旅游区
Low Density Tourism

工业
Industrial

大山和原野
Mountains & Wilderness

旅游绿地
Green Land For Tourism

工业绿地
Industrial Green Land

公共住宅绿色园区
Public Green Residential

生态绿地和农田
Bio-Eco Green & Farmland

空地
Vacant Land

工业绿地
Industrial Green Land

湖泊和河流
Lakes and Rivers

潮间区
Intertidal

海洋
Ocean

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确定和限制都市发展的边界是保持山和海的自然连接和秀丽景观之关键。

组团内东海岸沙滩和海滨陆角将作为公园加于保护。

琅琊镇和泊里镇的城市公园是组团内山和农业绿地景观的自然连接。

绿色农业是组团内北部山岳和旅游园区的重要缓冲带。

城市内和工业园区周边的绿化带和绿色小区是地表水重要的生物过滤区。

车轮山度假区可俯视龙湾和遥望琅琊台,视野开阔,美不胜收。

新规划的水晶城将整体面向琅琊公园和琅琊台。

山海公园的山林是一片绿色保护区,它对车轮山和水晶城的景观和美学价值意义重大。

琅琊镇市政府大道穿越农业景观区,连接海洋研究所和海滨陆角。

泊里镇市区建筑俯瞰着组团的绿色景观带和南头港。

所有社区周围的水系都有绿色缓冲带,防止水土流失和水质污染。

所有的旅游度假园区都环绕着生态绿地和大海。
自行车道穿梭于生态绿地和公园之间,人们可自由享受山川和大海的美丽。

组团内所有的水源都受到严格的保护。

生态,视觉景观和绿地分布

Ecology, and Views and Open Space

Strong Mountain to Ocean connections are maintained by Urban Growth Boundaries.

The East Coastal Beach and Headlands are protected as parkland.

Mountains are connected to eco green lands through urban parks in Lang Ya Town and Boli Town.

Green agriculture serves as a buffer between northern urban areas and tourism resorts.

Green zones in urban and industrial neighborhoods also serve as bio filtration for surface water.

The Chelun Mountain Resort has striking views of Dragon Bay and to Lang Ya Tai.

The retail core of Crystal City is oriented to the park and views Lang Ya Tai.

Mountain to Sea Park acts as a large green reserve that enhances the views and value of both Chelun Mountain Resort and Crystal City.

The City Hall Boulevard of Lang Ya Town orients, over farmland, directly to the Marine Institute and the Ocean Headlands.

The civic structures of Boli Town enjoy a green view toward South Point, south over the boulevard.

All waterways associated to populated areas maintain a green buffer area.

Bio eco green land and the sea surround resort areas.

Bicycle paths travel through green land and parks, with many views to the mountains and to the sea.

The domestic water supply is protected in all areas.

自行车道/步行道
Bikepath/Walkway

滨海公路
Coastal Road

同三高速公路
Tongsan Expressway

铁路
Railroad

工业
Industrial

大山和原野
Mountains & Wilderness

旅游绿地
Green Land For Tourism

工业绿地
Industrial Green Land

公共住宅绿色园区
Public Green Residential

生态绿地和农田
Bio-Eco Green & Farmland

空地
Vacant Land

沙滩
Beach

湖泊和河流
Lakes and Rivers

潮间区
Intertidal

海洋
Ocean

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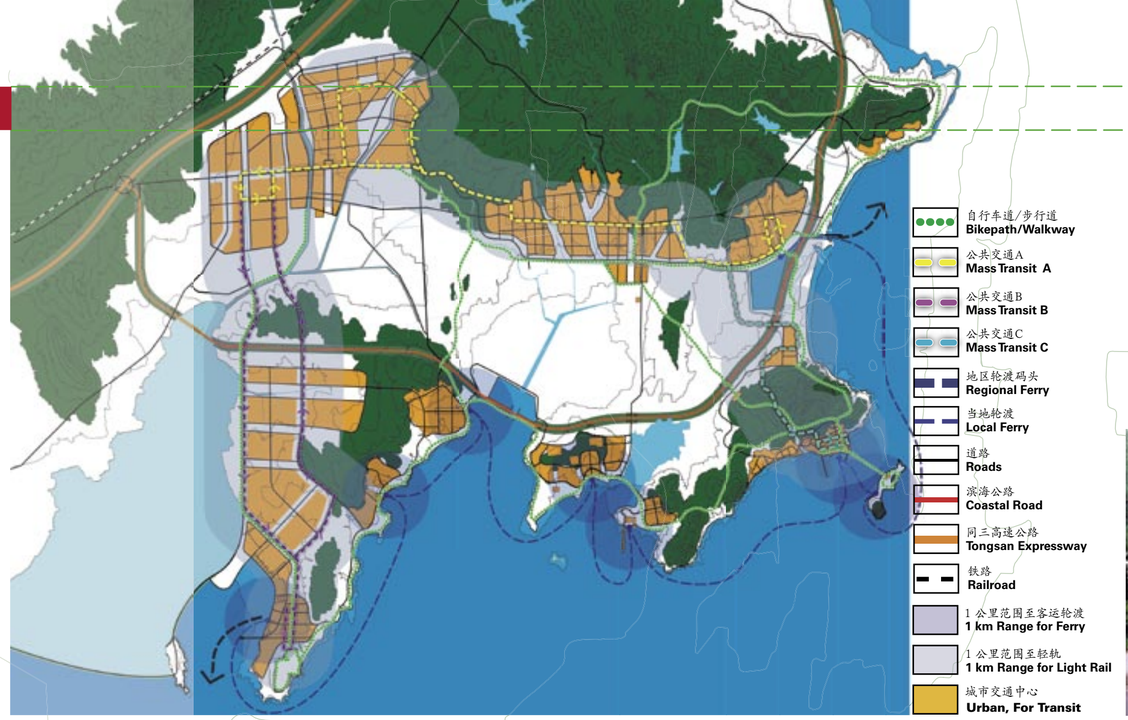

交通:综合规划
Transportation: An Integrative Approach

卡车和私家车的快速增长将给中国的道路系统和生活质量带来深远的影响。车辆的增多方便了人们的交通,可以促进经济的增长,但给基础设施带来了许多挑战。我们仍然希望技术的不断发展可以减轻污染和其他环境问题。新式发动机,如配有空气质量管理系统的车辆,气电混合、电力、燃料电池及其他发动机,也许会恰巧在中国需要它们时进入市场。我们预计琅琊组团的发展将会遇到各种重型运输车和私家车辆交通阻塞的问题。如果汽车成为人们交通的主要方式,道路建设速度便很难跟上汽车的增长,在人口密集的地方,情况尤其如此。由此合理控制汽车增长速度及创建合适的公共交通工具和方式是十分重要的。根据美国的经验,如果汽车是地区的重要交通工具,那么,公路建设是跟不上需求的增长,不断筑路又反而造成更严重的交通阻塞,这种恶性循环对一个地区的经济破坏巨大。我们期望我们的城市发展和交通规划可以避免出现上述情况。

我们围绕可持续性的理念来规划琅琊组团的交通运输系统,给整个地区的人们及游客多种交通方式的选择,并使不同收入水平的人们能用得起不同的交通方式。整个交通系统对私家车及公交车道路、轻轨、自行车道、人行道、当地客运轮渡和地区客运轮渡等方面都作了综合系统的规划设计。

The rapid growth in truck and private automobiles will have a profound impact on China's road networks and quality of life. While personal freedom and a great potential for economic growth comes with such vehicle ownership, many infrastructure challenges result. We remain hopeful that evolving technologies will mitigate pollution and other environmental problems. New engine choices such as vehicle air-quality management, hybrid (electric-gas), electric, fuel cell engines and others, will come of age coincidentally with China's demand for such individual vehicles. We anticipate this growth in heavy commercial and personal automobile traffic will coincide with the development of Lang Ya City Group. It will be difficult to keep up with road construction if cars become the primary source of commuting and general people movement, especially with dense populations. It is therefore extremely important to plan for such growth and the pattern effects by creating a network of desirable alternative methods for moving people en masse. From lessons in the United States, if the automobile is defined as the primary source of intra-urban transit, road construction alone will not keep pace with demand; the continual congestion caused by road upgrade cycles are hugely disruptive to an area's economy. We anticipate that our urban growth and transportation approach will provide a practical alternative.

The transportation system has been organized around the ideals of sustainability, providing attractive options for commuters and tourists in all areas of Lang Ya City Group, and offering access to people of all financial means. The system integrates roads for private vehicles and buses, light rail, bicycle trails, pedestrian walkways, local passenger ferries, and links to regional passenger ferries.

道路系统

滨海公路和同三公路是琅琊组团的主要路网干道。滨海公路连接着组团内许多景点和旅游度假村,是主要的观光旅游大道。为平衡控制交通流量和方便参观游览的需要,一般隔两到三公里设一个交叉路口。当然这并不是一条限制车辆的高速公路。但工业卡车应禁止上滨海公路。另外,一条优美的辅路将沿海岸蜿蜒,连接滨海旅游景点。同时,公路西边绿化带所种植的树木应以当地种类为主,它们应不需要额外浇灌。

道路规划中,我们设计了两条并行的二级公路,它将有利于控制车流和紧急情况。通过城区和度假区的道路,我们设计一条线路直串城区,另一条绕城而建。在工业区,复式公路连接了两个工业区并通向南部港口区。最西端的轻型及中型工业区(7.5)的道路可看到沐官岛水库,因此即可用于工业运输,又可用于旅游业。

Road System

The Tongsan Expressway and the Coastal Road are the regional links to the Lang Ya City Group. The Coastal Road is the primary scenic tourism route and links resort areas. To balance traffic flow and access to the area's attractions, intersections are generally 2 to 3 km apart; however, this is not a controlled access highway. Industrial truck traffic will not be allowed on the Coastal Road roadway. A scenic secondary road will wind along the coast and connect coastal areas of interest. Green belt plantings along roadways should be focused on indigenous plant choices that need no additional irrigation.

Our road plan includes a pairing of secondary roads for flow management and emergency alternatives. In urban and resort areas this pairing generally has a central business route and is complimented by a periphery bypass alternative. In the industrial area, dual roads link the two industrial zones, and provide an avenue to the South Point area. The westernmost access road in the Light and Medium Industry area (7.5) has a view of Muguando Reservoir, creating a dual-use for industry and tourism.

轻轨

轻轨是我们这份总体规划中用的词,指以基础交通系统为优先权概念。它的具体形式有轻轨、电车或有限的专线客车。确立并保持其优先权的理念是十分重要的,具体技术则可进一步研究和确定。

Hans Blumenfeld的公共交通研究结果表明,人口密度每平方公里高于4,600人时,公共交通需要就突显。我们的城市拓展边界设定的一个优势是有轻轨的地区的人口密度都超过了这个标准;在人口聚集区,人口密度更是比这个标准超出了300%。根据我们的设计,所有住宅区与轻轨线路的距离不超过一公里。此外,基本上所有的工业区距轻轨线也不超过一公里。有一部分轻轨系统作为旅游交通抵达琅琊滨海公园。

交通图上的浅灰色区域为距轻轨线一公里的地区。系统内的单行线用箭头标明。借助当地及地区轮渡系统,几乎所有市民和游客距大众交通线的距离都不超过一公里(不考虑未来公共汽车线路)。黄线标明人口最密集的市区(占城市总人口的85%)。紫线是往返工业区的交通线及游人前往南部港口村(5.3)的线路。蓝线连接了黄线通往大众旅游村(1.2)琅琊公园村(1.1)和琅琊公园设施。

Light Rail

Light rail is a term used in this master plan to denote right-of-way based transit, which can be in the form of light rail, tram or limited guide-way buses. For purposes of this master plan it is critical that the rights of way be established and preserved; the particular technology can be selected after a more detailed investigation.

According to Hans Blumenfeld's mass-transit studies, population densities greater than 4,600 people per square kilometer are needed to support mass transit feeder lines. A benefit to our growth boundary plan is that all population areas served by light rail lines exceed this minimum, and in the densest zones, exceed the minimum by more than 300%. Almost all the population served is within 1 km walking distance of a light rail line. In addition, virtually all of the industrial zones are within 1 km walking distance of a light rail line. A third segment of the light rail system provides access to Lang Ya Coastal Park.

The transportation map shows the 1 km light rail access areas in light gray. One-way loops in the system are denoted with arrows. Combined with local and regional passenger ferry links, almost all residents and visitors are within 1 km walking distance of mass transit, not considering potential bus routes. The Yellow Line serves the densest urban areas that constitute 85 percent of the city group's population. The Purple Line provides commuter access to the industrial areas, as well as tourist access to the South Point Village (5.3). The Blue Line connects the Yellow Line to Affordable Tourist Village (1.2) and Lang Ya Park Village (1.1) and Lang Ya Park facilities.

客运轮渡

沿海相对平静的水面提供了高效而吸引人的水上交通运输系统。当地客运轮渡可以连接所有滨海度假区——水晶城(2.0),海洋所(1.3)和南头村(5.0)。除满足基本交通需求外,当地客运轮渡可以方便游人游览各旅游景点、琅琊台美景、沙滩和度假区。轮渡码头也创造了经济活动中心。搭乘地区轮渡可前往水晶城(2.0)和南头村(5.0)。人们还可以通过观光游船到青岛市区和青岛港,或甚至水上直达国际机场。

Passenger Ferries

The relatively calm waters on the coast create an effective and tourist-attractive link in the transportation system. Local passenger ferries interconnect all coastal resort towns, Crystal City (2.0), the Marine Institute (1.3) and South Point Port (5.0). In addition to providing basic transportation needs, the local passenger ferries provide tourists a convenient overview of visitor attractions, scenic views of Lang Ya Tai, beaches and resorts. Ferry terminals also create focus zones for economic activity. Regional ferry service provides links to Crystal City (2.0) and South Point Port (5.0). This makes it possible for efficient and scenic waterway access to Qingdao and perhaps to the international airport.

自行车道

自行车道是为游人及当地居民设计的。作为一种替代交通方式,骑自行车旅行可以减少路上的机动车辆,并鼓励人们进行锻炼。在只有自行车道的地方,如琅琊台的东部坡地,自行车道要能通行急救车辆。设计自行车道时要考虑地势、自然风景及其连接城区和其它景区的便利性。例如,琅琊镇和琅琊台之间的自行车道是最短最开阔的,它直接从美丽的农田之间穿过。

Bicycle Paths

Bicycle paths are designed for tourists as well as local residents as an alternative to other forms of transportation, thus reducing automobile traffic and encouraging the benefits of exercise. In areas accessible only via bikeway, such as the east slope of Lang Ya Tai, the bicycle path will be designed to accommodate emergency vehicles. The bicycle routes were designed considering typography, scenic beauty, and to provide efficient access among the urban areas and other areas of interest. For example, the bicycle path between Lang Ya Town and Lang Ya Tai is the shortest and most open route, through scenic farmlands.

步行道

所有的步行道应考虑其是否便捷、风景是否秀美以及是否安全。比较有特色的步行道有水晶城海边的木栈道(2.1)、龙湾及琅琊公园海滨陆角的木栈道。市区的步行区增强了城市的特色和舒适程度。

Pedestrian Walkways

Efficiency, scenic beauty, and safety should be considered in all pedestrian walkways. Special walkways include boardwalks at Crystal City's Marina (2.1), along Dragon Beach, and marine headlands in Lang Ya Park. Pedestrian zones of all urban areas improve the character and comfort in neighborhoods.

铁路

应在计划区域铁路线和重工业及中型工业园(7.3)或者南头港口(5.0)之间优先考虑设计建设一条铁路支线。这条支线将为那些需要大宗货物运输或送货的厂商提供服务。一旦区域铁路提供客运,我们应建一条连接黄线的轻轨。我们应优先论证建设这条轻轨的可行性。

Railroad

The right of way for a potential railroad spur should be designated between the planned regional railroad and the Heavy and Medium Industrial Park (7.3) and possibly to South Point Port (5.0). This railroad spur would serve manufacturers requiring large bulk deliveries and shipments. Should passenger rail service be established using the regional railroad, a light rail link to the Yellow Line should be constructed, and right of way should be defined for this possibility.

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ROBERT EDSON SWAIN A I A

Natural Disasters

预防自然灾害的规划,融和于琅琊组团总体规划的整体考虑之中。区域分界和区域安全是我们的首要考虑。我们的规划包括,限制在泛洪区内不搞建筑,限定的一定的海拔高度作为城市发展的上线和建筑高度限制,还有充分利用绿地和开阔地作为紧急疏散人口用地等,都是基于区域安全的考虑。我们从城市人口的规划以及城市建筑空间和高度布局,考虑对地震或其它自然灾害情况下的人口疏散和其它紧急措施的实施。同时,我们在人口密集的地区都设计了至少两个以上的紧急出口,包括工业区等地所设计的双道高速公路,都是基于这种紧急疏散的安全战略考虑。我们的规划中,尤其重视滨海地区预防自然灾害的设计,比如,滨海低地与高地的连通和便利疏散的道路。我们所设计的绿地和综合自然水系都是整体规划中对自然排放的畅通、预防洪水和海潮海啸等自然灾害的全面考虑。显然,在建筑设计标准中,我们应该从真考虑建筑的防火和防震性能。

我们的规划还突出考虑了在人口居住区、工业区和其它重要保护区防止火灾的战略实施。比如,我们在琅琊台的北门设计了一个消防站,这个消防站离滨海公路近,不但担负公园的防灭火任务,也负责滨海沿线邻近各地区的消防。我们要求,北部城市的消防站还应培训和担负起高楼营救的任务,以满足消防救火和反恐的需要。这种需要和要求对于水晶城将会更突出。我们所设计的社区中心,包括了社区生活的便利,也突出社区紧急救援、医院急救护理、救火消防等等。另外,我们所设计的自行车道都要求达到能通救护车和救火车的标准。这种投入成本小、多功能利用和网络化,对这个区域的自然灾害防治都会起非常关键的作用。生态绿地和农业区域的规划,减少了城外火灾的可能性,也使各城区之间有了隔离带。对都市火灾的预防,也是区域安全规划的一部分。

基础设施
Infrastructure

电力和供暖

我们从几个方面考虑了增长电力的需要:火电、水电、风力发电、太阳能发电等。在最终决定设计新的火电厂前,建议逐步尝试新的发电系统,并评估比较风力发电、水力发电的潜力和经济效益。另外,我们建议认真研究使用天然气的可能性和潜力,尽快考虑铺设整个地区的天然气管道。我们始终提倡节约用电,并认为太阳能发电仍处在摸索阶段。

火力发电

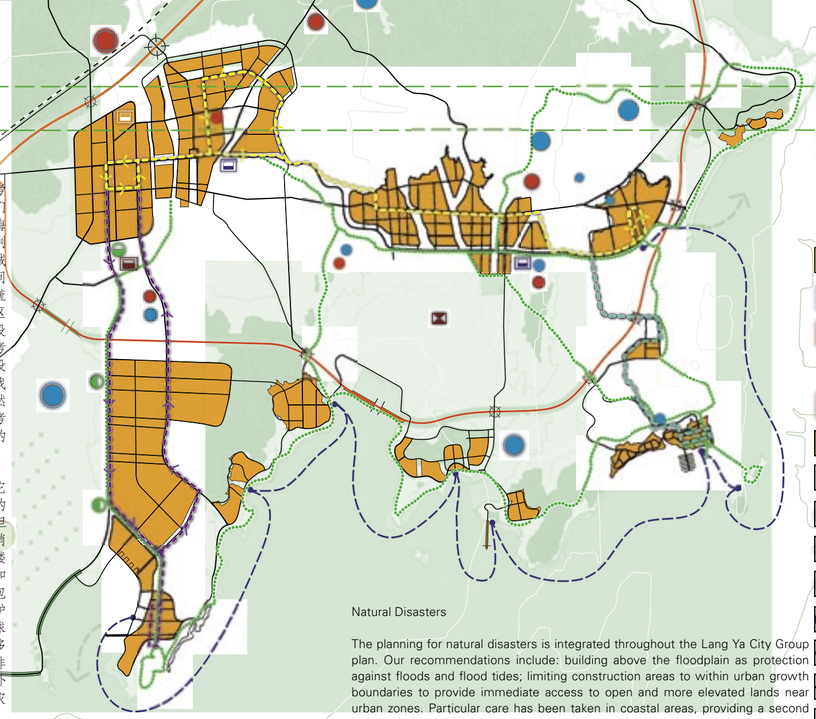
泊里的现有火力发电厂肯定要一直使用到2020年,直至有先进的火电设施替代它。建议在泊里工业园的北部靠近新建铁路线再建一个发电厂。这几运输煤炭及其它燃料非常便利;电力输送到工业区和居民区也很方便。在开发新工业区时,一定要考虑电力联网问题。我们把供暖电厂放在泊里重工业的中心,以方便输送及优化电力联网的可能。

水电

山区水库可以结合供水系统一起提供水力发电。供水和发电的统一和管理都是互补的。同时,我们合理设计定位的三个新农用水库也适用低水头水力发电机发电。另外,可利用风力从沐官岛把水提升到地势高一些的农用水库中,再通过重力自流,为发电机发电创造了落差。

风力发电

我们建议在沐官岛水库建立一个大型风力发电厂,用于发电和风力驱动水泵输水。我们预计可使用1兆瓦的涡轮发电机。1兆瓦的涡轮发电机可以满足1500户居民用电。尽管现在使用1.5兆瓦甚至更高的容量的发电机日渐流行,甚至德国已开发了2兆瓦的发电机,但我们还是建议使用1兆瓦。这对水库区域的保护及对游人的限制也便于系统的建设维护。这些巨大的设备可以创建一个“风车公园”,成为一个很有吸引力的旅游景点。



Natural Disasters

The planning for natural disasters is integrated throughout the Lang Ya City Group plan. Our recommendations include: building above the floodplain as protection against floods and flood tides; limiting construction areas to within urban growth boundaries to provide immediate access to open and more elevated lands near urban zones. Particular care has been taken in coastal areas, providing a second evacuation exit on higher ground. These dual or multiple road patterns offer efficient evacuations when required, always with back up routings for emergency vehicles. We have recommended extensive use of green zones along natural waterways, and have defined the master plan in relation to natural drainages, minimizing damage from potential flooding. Obviously all-new construction must have a high standard for fire and earthquake protection. All populated areas have been designed with at least two primary and many secondary exits for emergency evacuation.

Fire departments should be placed strategically in populous areas, the industrial zones, and areas near important sites. For example, we have recommended a fire department at the north gate to Lang Ya Tai, providing protection to the park, and allowing easy access to the Coastal Road to assist in fires in other areas. Fire departments in the northern urban areas should be capable of rescuing people at the highest floor of buildings – special attention must be taken in Crystal City. The urban centers are defined by neighborhoods and adequate public facility areas are located in and near each neighborhood for fire, hospital and other emergency vehicles. All bike paths have been specified to accommodate emergency vehicles, including fire vehicles and ambulances. Creation of bio-eco green zones and parks, as well as the farming methods recommended, minimizes fire potential in non-urban areas and creates distinct separation for urban areas.

Electric Power and Heat

We approached the need for electric power growth from several points of view: fossil fuel and cogeneration, hydropower, wind power, conservation and solar power. We recommend an incremental approach to integrating new systems and to evaluate the potential and cost effectiveness of alternatives: hydropower, wind power and cogeneration, before finalizing the design of new fossil fuel plants. Conservation is always recommended; solar power still remains marginal.

Fossil Fuel and Cogeneration

It is obvious to keep the existing fossil fuel plant in Boli operational until replaced with a state of the art fossil fuel facility before 2020. We recommend locating a new power plant north of the Boli industrial zone and near the new rail line, facilitating delivery of coal and other fuel sources, and offering a convenient location for industrial and domestic use. Cogeneration should always be considered in developing the new industrial complex. We have located the central heat generating facility in the heart of the Boli heavy industry area for efficient heat distribution and to maximize cogeneration potential.

Hydropower

Mountain reservoirs provide good opportunities for hydropower when combined with domestic water distribution; the consistency and management of both are synergistic. Also, careful design and positioning of new agricultural reservoirs will accommodate low-head hydro generators to supplement the electric grid. Wind power can mechanically lift water from Muguando Reservoir to higher agricultural reservoirs, thus creating a gravity distribution and elevation for the generators.

Wind Power

We recommend integrating the Muguando Reservoir with a large-scale wind farm, for both electric power generation and wind pumps for water distribution. We anticipate applying one-megawatt turbines, though the use of 1.5 megawatt generators and higher are becoming popular and should be considered; Germany is now building two-megawatt units off shore. A one-megawatt turbine will supply enough power for 1500 households. The protected and limited access zone of the reservoir supports construction and maintenance of the system. These dramatic structures can create the theme of “a windmill garden” and become a dramatic tourist attraction.

现状
Existing Reservoirs

规划水库
Planned Reservoirs

规划电厂
Planned Power Plant

规划供暖和电力
Planned Heat and Power

规划供水
Planned Water Supply

现有污水处理厂
Existing Wastewater Treatment

生物过滤污水处理
Biofiltration

规划污水处理厂
Planned Wastewater Treatment

规划供暖和电力
Planned Heat and Power

自行车道/步行道
Bikepath/Walkway

公共交通A
Mass Transit A

公共交通B
Mass Transit B

公共交通C
Mass Transit C

地区轮渡码头
Regional Ferry

当地轮渡
Local Ferry

道路
Roads

滨海公路
Coastal Road

同三高速公路
Tongsan Expressway

铁路
Railroad

大山和原野
Mountains & Wilderness

湖泊和河流
Lakes and Rivers

潮间区
Intertidal

海洋
Ocean

N

通讯和互联网

琅琊台要成为旅游发达、商业繁荣的地方,高速互联网和高效通讯是不可缺少的。随着公路的扩建,地下工程的增多,数设大容量光缆会相对容易。

无线通讯和互联网吧

我们推荐在所有旅游区开设高速无线网络,在公交线路使用无线走廊,车上装载服务器,以便于移动管理。独特的互联网吧在市区及旅游区应非常普遍,以方便游客和家中未联网的市民使用。

其它通讯方面的考虑

其它通讯方面,应考虑建设地下电缆通道,减少将来道路开挖,方便布线。优先考虑建设地下电缆通道对未来通讯技术是十分重要的。鉴于大部分人们与轻轨的距离不超过1公里,我们建议沿轻轨建设通信主干线。琅琊镇将是琅琊组团的数字和通讯枢纽。它应建有一个大容量的网络服务器。琅琊组团应特别注意建立一个支持多种语言的网站,以加强宣传,吸引游客和投资者。此外,琅琊组团应逐步保证网络搜索引擎可以优先搜索到这个网站。

水

供水和水质量管理对琅琊组团的成功发展非常重要。我们首先澄清区域内的流域分为工业流域和农业流域。所有重要的工业都位于泊里镇流域;所有重要的旅游业都位于琅琊镇以东的流域。我们这里引用了一些2002年的统计数字,以供参考:农业用水59%,工业30%,居民11%。随着社会经济的发展,居民用水会大大增多。我们应拟定计划,对人们进行水质和用水方面的教育。

居民用水

我们建议把现有山区水库划为居民用水水源(规划人口的85%靠近山区),减少并监控高海拔地区水库的人类活动;这些水库提供了城市组团主要的饮用水水源。

农业及工业用水

新建沐官道水库应留给工业和农业供水使用。工业区和居民区都前这里排放,通过处理得到回用。我们在农田区的高坡规划了三个新的农用水库,以借助重力自流,对农田进行灌溉。此地应安装风力驱动的水泵,保证重力自流系统的正常运行。所有的水道和排水渠都将加以保护,并借助生态缓冲区提供效益。

海水淡化

海水淡化可行性的研究机构将设在沐官岛上,它可以使用风力驱动的水泵。随着技术的改进,海水淡化会变的经济可行。

污水处理

我们建议工业地表水、非工业地表水和生活污水采用不同的系统处理。泊里排水系统的汇流处便是一个生活污水和地表污水的理想处理场地。这个地方适合建一个水质和自然资源管理所,监控农业、工业和城市化对生态环境造成的影响。

地表水处理

地表水的处理主要应采用自然净化方法。所有的地表水可经生态过滤程序处理。在工业区可设计建造一个复合生物处理厂,其中包括沉淀池、曝气池、危险废物收集器和控制湿地,用于工业废水的生物降解、消毒。市区的大部地表径流可以通过小溪、河流、明渠等自然净化。建议多设明渠,尤其在绿化带中。只要有可能,废水应在污染源处进行处理。生态绿化带除具有净化水质的作用外,还具有娱乐的功能,可开辟为环境公园。

污水处理

我们建议集中处理区域内的污水,以方便水质管理和回用。我们规划了两条主要管道,一条由东往西至泊里污水处理厂,它收集了85%人口的生活废水;另一条沿滨海公路敷设,收集其它工业区、旅游区和居民区的污水。管道要尽可能采用重力自流,需要的地方加以泵站提升。我们还认 为,在琅琊组团大发展之前,新污水处理厂附近会有许多空地,可以利用这些空地,采用喷淋方法净化污水。水处理后的固体物和污泥,应进一步处理去除重金属和污染细菌,并加以利用。所有用于地表喷淋或污泥消毒的地方必须严加控制,限制人们接近。在新污水处理厂正式运行后,2020年前琅琊及其它一些小处理厂便可关停。

Telecommunications and Internet

For Lang Ya City Group to be a viable tourism and business environment, high-speed Internet and effective telecommunications will be fundamental. With the extent of new rights-of-way and buried infrastructure, it will be relatively easy for high volume fiber optic cable placement.

Wireless Access and Internet Cafés

We recommend innovative high-speed wireless Internet for all tourism areas, wireless corridors on public transportation routes, with commuter vehicles having on-board servers for transition management. Ubiquitous Internet cafés should be abundant in the urban and tourism areas for tourists, and for residents who do not yet have personal Internet connections.

Additional Communications Considerations

Underground raceways should be built in rights of way to reduce future need to trench, allowing wires to be pulled without digging. Establishment of these rights of way are critical for implementation of future technologies. Light rail rights of way are recommended as trunk routes for telecommunications, since these lines are within one kilometer of most of the population. Lang Ya Town should be the digital and telecommunications hub of the City Group, which includes establishment of a large Internet Service Provider. The City Group should place a high priority on creating a multilingual world-class web site to drive tourism and investment traffic, and should take steps to ensure prominent Internet search engine placement.

Water

Water supply and water quality management are essential to the success of Lang Ya City Group. Our first point of clarification has been to distinguish the main watersheds into the industrial watershed and tourism watershed. All significant industry is located in the Boli Town watershed; all significant tourism is located east of the ridge in the Lang Ya Town and easterly watersheds. For reference we considered 2002 statistics about water quality and water use.

Domestic Supply

We recommend directing existing mountain reservoirs to domestic consumption (85% of the planned population is nested near the mountains). Human activity should be diminished and monitored near the high reservoirs—this is the City Group's primary drinking water.

Agricultural and Industrial Supply

The new Muguando Reservoir should be reserved for both agricultural and industrial requirements; industrial and residential areas naturally drain into this reservoir, and reclaimed water can be managed here. Our plan shows three new agricultural reservoirs on upland farm plateaus, for gravity feed to agricultural lands; wind pumps should be installed to keep this gravity system supplied. All waterways and drainage will be protected, and will benefit from eco buffers.

Desalination

A research facility for studying the potential of desalination is located on Muguando Island, and could benefit from wind pumps. This source may become cost effective with evolving technology.

Wastewater treatment

We recommend different systems for industrial surface water, non-industrial surface water, and sewage. The confluence of the Boli drainage is an excellent site for treatment facilities, both for sewage and surface water. This area is also well suited for a water quality and natural resource management institute, monitoring the ecological effects of agriculture, industry and urbanization.

Surface Water Treatment

Following nature's own methods for cleaning water, a well-planned and maintained bio-eco filtration course must occur at all surface water flows. In the industrial zones a sophisticated bio-structure can be designed with sediment ponds, aeration, hazardous waste traps and managed wetlands for bio detoxification of industrial surface water. In urban areas, most of the surface runoff can be managed for decontamination from the source, using natural open streams, creeks and rivers. We encourage open watercourses, especially in eco-green belts. Polluting sources should be resolved at the source wherever possible. All the bio-eco green belts offer complimentary recreational and park environments in addition to their water quality function.

Sewage Treatment

We recommend consolidating the sewage processing into one regional facility, offering a significant improvement in water quality management and reuse. Two main supply lines are considered in our plan: one running east to west connecting 85% of the urban population to the Boli Sewage Plant; the second, along the Coastal Road, gathering the remaining Industrial, Tourism and Residential areas. Gravity lines are considered where possible, supplemented with pump stations. We also believe that there is adequate land area near the new plant to allow for transitional treatment, like spray irrigation, until the Lang Ya City Group reaches critical mass of development. Once tertiary water quality is assured, the water can be recycled for agriculture; the solid byproduct can also be reused if both heavy metal and contaminating bacteria are properly processed. Any areas used for surface spraying or solid waste detoxification must be strictly controlled to limit human access. We see phasing out the Lang Ya and other small processors towards 2020, once the new Sewage Treatment Plant is fully operational.

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