Car Sharing
Car sharing could stem the tide of multiple car ownership within each unit and encourage sustainable transportation habits in the development. More than half of residents surveyed have cars, and interviews showed that those who have cars use them frequently, and that many residents expressed a need or desire for more than one car. Vanke’s practice of requiring residents to buy, rather than rent a second parking spot discourages excessive car ownership and usage, which has a positive impact on the environment. One possibility for households with one car but needs for an additional car from time to time could be a car-sharing scheme. In this scheme, a car share company owns a fleet of cars. Customers pay a membership fee to join the car share, and then can sign up to use any car for an hourly fee. One US company that uses this model is Zipcar (www.zipcar.com).

Recycling
The Holiday Town development should embrace informal recycling to be at the forefront of a sustainable system of waste management. Some residents recycle materials by selling them to the informal recyclers who collect paper, cardboard, and plastic on their tricycles. Since Holiday Town is closed to these workers, a resident reported having to go outside the development to accompany the recycler in, which was inconvenient. To encourage recycling, Vanke could facilitate the informal recycling already going on by providing a place for residents and recyclers to meet at a particular weekly or monthly time or by “licensing” particular recyclers to enter the site at prescribed times. At a policy level it is recommended that recycling is tied to an incentive in order to encourage a sustainable system of waste management as described in the earlier section called “Waste.”

Phasing
Phasing that responds to residents’ needs could create sustainable patterns of use. Residents, especially seniors, enjoy having amenities within walking distance. The three community amenities not offered in the community but most often requested by residents’ are a health clinic, a vegetable market, and a Post Office, all of which are coming in Phase V. This shows that Vanke is responsive to resident needs, but adding these amenities earlier within the phasing of the development would have been greatly appreciated by residents. This is an important issue because having these community amenities in close proximity allows for sustainable patterns of transportation.

Security and Site Wall
Security systems on the site are successful and design and planning innovation should pave the way for a larger, more connected series of developments. Residents overwhelmingly report that they feel very safe in Holiday Town. When asked what makes them feel safe, residents always mention the high quality of the guard staff.

In addition to security functions, they appreciate the guards’ help with errands like getting taxis and carrying packages, and that the guards know the residents well and are very polite, providing a sense of community. Some residents expressed concern that there was high turnover among the guards.

It is interesting to note that the interviews revealed that resident perceptions of security correlate to the guards, not to the wall that surrounds the community. Security is a big concern and one that is currently being addressed, but the wall is in conflict with larger sustainability issues such as landscape connectivity and community interaction as mentioned below. Opportunity exists and should be studied to develop creative wall solutions that balance resident safety and sustainability though design and planning.
Site Landscape Ecology

Ecological function should become integrated with a hierarchy of open spaces to give function to the landscape. The landscape system in Holiday town is carefully designed and maintained, and is a key amenity to residents. However, the system provides an opportunity to create not just an aesthetically beautiful amenity, but an ecologically significant feature that contributes to the community infrastructure. In our initial analysis, the plant and water systems of Holiday Town are being under utilized as tools for storm water management, flood control and water quality improvement mechanisms. Design and technology studies should be conducted to deeply explore the potential function of these landscapes. The implementation of ecological function provides an opportunity for greater diversity in the landscape.

Regional Landscape

Landscape ecology must occur in the framework of a region and Vanke as a leader China should be on the forefront of this effort. A complete ecological landscape system cannot be created by simply addressing on-site considerations; landscape ecology must be planned at a regional scale. The diagrams in the chapter "Site Landscape Ecology" illustrate this concept. Unfortunately, district, city and national government have done little to coordinate such efforts, and with time, this may effect or restrict the health of the environment in Holiday Town. For this reason, Vanke - as the most innovative developer in China - has the ability and interest to provide the missing leadership in this regard.

For example, the canal which forms the southern edge of the site exhibits tremendous potential to become a district, if not a regional greenway. This potential is currently precluded by a lack of coordination between neighboring development projects and the desire to protect the park from outsiders. The benefits of creating a recreational canal corridor will outweigh the costs of overcoming these barriers. Although district or city government could provide the leadership to make this possible, it may be faster and more effective to collaborate with neighboring developers and neighborhoods in order to begin the restoration process. Ultimately, government intervention will be required at a regional scale to mitigate and prevent pollution.

In addition to creating a continuous ecosystem corridor for wildlife and water management, the canal can add considerable value to the development. In our interviews, one resident mentioned that he would like to be able to jog or walk on a more interesting, continuous path that extends beyond the Holiday Town site. Coordinating a canal corridor would certainly enable this type of recreation.
Adaptability of exterior space

Recreational and utilitarian use must be both accommodated:
Balcony space is coveted utility and recreational area. The architecture should accommodate resident adaptation while maintaining standard for safety and orderly appearance.

Natural ventilation should be maintained:
Residents should avoid blocking ventilation paths with glass enclosures.

Establish guidelines for safe modification:
A menu of balcony modifications might create a selling point for certain unit types.
**Interior spaces**

Open floor plan kitchen-dining-living area is appreciated by most residents:

Open floor layout, which is adaptable with sliding divisions provide flexible layouts. Similar layouts with other adaptable components might be researched for more options.

Most residents report that bedroom, kitchen, and circulation spaces are well proportioned:

Residents seem most likely to customize bathroom layouts rather than bedrooms.

Ground floor utility/storage room for local storage:

Balcony spaces often take this role. Storage on ground floor available for rental/purchase seems marketable.
Thermal Comfort

Current strategy is electricity intensive:

Most A/C and space heating is electrical, leaving all residents dependant on affordable electricity. Fa ade installation and penetrations for evaporator units are often problematic. Consider district heating and cooling for cost and energy savings.

Varying levels of comfort depending on region of origin, generation:

New solutions should allow residents to save/consume according to preference.

Consumption expected to increase with next generation:

Younger residents more likely to seek more comfortable heating and cooling systems including, in-floor radiant heating, dehumidification/humidification, air filtration, insulation.

Elderly residents/fixed income residents may not have access to affordable heating and cooling in the long term:

If electrical costs continue to rise, some residents may lack adequate summer cooling or winter heating if not allowed southern exposure, insulation, or fossil fuel based heat.
Windows and Doors

Insulated glass is of value to residents, and provides better moisture control.

Residents noted that single pane glass windows were uncomfortably cold in the winter, with condensation contributing to a damp environment in the apartment.

Insulated, weather stripped, and screened systems provide flexibility and energy savings.

Some residents have self-installed weather stripping and retrofitted screens on their window systems. Designers should consider offering more flexible window systems with options for adding screens, exterior shading, and shutters, according to preferences of residents.
**Roofscape**

**Encourage greening of roofscape**

Residents commented that a view over a pleasant roofscape contributed to unit selection decision. Ecological roofing or resident gardening could contribute to this.

**Consider insulation and ecological roofing systems**

Top-floor residents commented that lack of insulation above contributed to excess heat gain/loss.

**Discourage large, heavy non-functional features on rooftops**

Designers should consider rooftop features that provide shade in the summer, and do not contribute to maintenance problems.

**Preserve view corridors as much as possible**

Some tall buildings block view corridors from lower ones.

**Establish guidelines for residential solar hot water installation**

The roofscape could be designed in a manner which encouraged solar installations. Piping and support points could be pre-installed for residents.

**Consider rainwater harvesting:**

Rooftops can collect water for irrigation, washing, and discharge.
Building Types

**South orientation is critical selling point amongst traditional Chinese buyers**

Southern orientation seems critical for practical (i.e., laundry) and recreational (sun bathing) purposes.

**Walk ups seem to be more popular; with larger units (low maint)**

Some residents mentioned that their first choice was a walk up unit, and that they planned to move to elevator building later.

**Elevator building layouts seem less efficient and not well ventilated**

Some units in elevator buildings lack capacity to naturally ventilate. Space is lost to vestibule and backup elevator.

**Elderly residents change units to gain elevator access:**

Accommodation of small elevators in some unit types might encourage long term residents. A cost effective alternative might involve shared elevator cores, or deferred installation of elevators.
Noise

Between units is managed well by layout:

Residents commented on the advantage of having living rooms facing each other and bedrooms on the end of the building.

Roadways to north and west could be attended to:

Residents noted on the advantage of buildings which were not on the street or highway. Landscape and building systems could be designed in a manner which reduces noise penetration.

<table>
<thead>
<tr>
<th>FAMILY INTERVIEWED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Family Name</td>
</tr>
<tr>
<td>2 Family Name</td>
</tr>
<tr>
<td>3 Family Name</td>
</tr>
<tr>
<td>4 Family Name</td>
</tr>
<tr>
<td>5 Family Name</td>
</tr>
<tr>
<td>6 Family Name</td>
</tr>
<tr>
<td>7 Family Name</td>
</tr>
<tr>
<td>8 Family Name</td>
</tr>
<tr>
<td>9 Family Name</td>
</tr>
<tr>
<td>10 Family Name</td>
</tr>
<tr>
<td>11 Family Name</td>
</tr>
<tr>
<td>12 Family Name</td>
</tr>
<tr>
<td>13 Family Name</td>
</tr>
<tr>
<td>14 Family Name</td>
</tr>
<tr>
<td>15 Family Name</td>
</tr>
<tr>
<td>16 Family Name</td>
</tr>
<tr>
<td>17 Family Name</td>
</tr>
<tr>
<td>18 Family Name</td>
</tr>
<tr>
<td>19 Family Name</td>
</tr>
</tbody>
</table>